

Dr. T's presents

File Edit Settings Play Repeats Display Utilities MPE							
TK	INSTRUMENT	CH	NAME	SOLO	MUTE	GROUP	COMMENTS
1	PSR-488	1	Piano				♪ Accompaniment
2	PSR-488	2	Trumpet		*		Fanfare
3	PSR-488	3	Trumpet			*	Lead
4	FB-01	4	Nasty				Stabs at measures 32, 48
5	FB-01	5	SynBass				♪ Bass for chorus
6	CZ-101	6	BigBass				Bass for rest of song
7	RX-17	16					♪ Drums
8	Juno 106	9	*RECORD*				
9							
10							
11							
12							

EDIT

QUANTIZE

RECHART

Metronome

MiniSec

Bar: Beat 1 Stop

000: 4.6

7: 3:097

J=108

GROUP

CUE

X-REC

CUB

Tiger Cub
by Emile Tobenfeld
with QuickScore
For the Atari ST

*Additional programming by Cobey Gatos,
Tom Jeffries, and Jim Johnson
Graphic design assistance by Al Hospers
and Richard Viard*

*QuickScore by Crispin Sion
Additional graphic design by Richard Viard*

*Manual by Jim Johnson
Revision 1.1, March 22, 1990*

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Tracks *continued*
 swapping 62
Transposition 48, 52
 in QuickScore 80

U

Undo 47
Utilities menu 60

V

VE window 31, 33
Velocities... 48
Velocity 11, 33
 editing 45, 48, 51
 editing with the mouse 47
 scaling 48
Velocity stems 6
Vo 31
VO window 31
Volume changes 31

W

Windows
 controller 31, 32
 edit 7
 track 27, 29

X

X-REC button 22
XOR 74

Z

Zooming 28, 64

Quantization *continued*
 when pasting 44
 Quantize Selected 49
 QuickScore 75
 Quit 59

R

Radio buttons 7
 README.DOC 1
 Rechannelize 22, 65
 Record 37
 Record button 20
 Recording
 graphic editing screen 37, 52
 step-time 36
 tape recorder screen 24, 38
 Record and Show 37
 Redraw 39
 Repeat draw 55
 Repeat fill 55
 Repeat time 53
 in step-time 37
 Repeat Time... 53
 Repeats menu 53
 Restore Range 39
 Rewind 20

S

Save .ALL File... 59
 Save Display 76
 Save MIDI File... 58
 Save Startup 59
 Save... 57
 Screen redraw 39
 Scrolling
 during play 36
 through the song 29
 vertically 32
 Select Buffer 63
 Select Program... 61, 70
 Selections 42
 clearing 43
 maximum 43
 Send Programs on Loop 65
 Settings menu 59

Show Program Names 60
 Single Track 80
 SOLO 24, 25
 graphic editing screen 30
 Space warning message 56
 Split Selected... 51
 Split Track? 80
 Startup file 59
 Stems
 in QuickScore 78
 velocity 6
 Step Time Record 36
 Steps/Beat 10, 64
 Steps/measure 33
 Steps/Metronome 64
 Stop 20, 35, 65
 Stuck notes 35
 Swap Tracks... 62
 Swing 50
 Synchronization 64

T

Technical support 85
 Tempo 11, 33, 65
 indicator 28
 slider 21, 63
 Tempo Edit Range 63
 Text... 61
 Time Reverse... 48
 Time signature 33, 34
 in QuickScore 34, 79
 TM window 33, 63
 Track information line 30
 Track lines 23
 Track Name... 60
 Track scroll bar 32
 Track window 27, 29
 changing tracks 30
 Tracks 5
 channels 5, 23
 copying 60
 deleting 60
 merging 61
 name 30, 60
 number 23, 30

Contents

Chapter 1 Getting Started with Tiger Cub	1
Using the Manual.....	1
Getting Connected.....	2
Around Tiger Cub.....	4
Track Organization.....	5
Note and Controller Display.....	6
Left and Right Mouse Functions.....	6
Menus and Edit Windows	6
Hard Disk Installation and Copy Protection.....	7
Color and Monochrome Monitors	8
Starting Tiger Cub.....	8
 Chapter 2 For the Beginner.....	 9
What's a Sequencer?	9
Sequencer Timing.....	10
What's a MIDI?.....	11
 Chapter 3 A Guided Tour.....	 13
 Chapter 4 The Tape Recorder Screen.....	 19
The Control Panel.....	20
The Track Lines	23
Recording on the Tape Recorder Screen	24
Muting Tracks with SOLO, MUTE, and GROUP	25

Chapter 5 The Graphic Editing Display	27
The Master Controls	27
Scrolling Through the Song	29
The Track Window	29
The Track Information Line.....	30
The Track Scroll Bar	32
The Keyboard Icon	32
The Controller Windows	32
The Conductor Track.....	33
Playing from the Graphic Editing Screen.....	34
The Play Menu	36
The Display Menu	38
Redrawing the Screen	39
 Chapter 6 Editing with Tiger Cub.....	 41
The Left Mouse Icons	41
Selecting Notes for Editing.....	42
Moving a Group of Notes	43
Drawing Notes	44
Pasting with the Left Mouse	44
Editing Individual Notes.....	45
Drawing with the Keyboard Icon.....	45
Editing Controllers with the Mouse.....	46
The Edit Menu.....	47
Editing with the Keyboard	51
Recording with the Mouse.....	52
Horizontal Ranges	52
Editing with Repeats.....	53
Repeat Draw and Select.....	55
The "Space Warning" Message.....	56

M

Master controls	27
Measure number	29
Memory	56, 63, 72
Menus	6
Display	38
Edit	47
File menu	57
pull down	59
Repeats	53
Settings	59
Utilities	60
Merge Tracks...	61
Metronome	21, 38, 64
MIDI	11
MIDI channels	12, 23, 31
MIDI Clock	64
MIDI files	58
MIDI Merge	21, 65
MIDI Slow	64
Min:Sec display	21
Mod wheel	31
Mouse pointer	42
Mouse position indicator	28
Move...	50
MPE see Multi Program Environment	
MU	30
Multi Program Environment	71
memory	72
MUTE	24, 25, 30
MW window	31

N

NAME	23
New Track...	60
New...	57
Notes	
display	6
drawing	44, 45, 59
moving	45
pasting	44
selecting	42, 43, 55, 64

O

Off (Offset)	31
Open...	57

P

Panic button	35
Paste Buffer	63
Pasting	44, 48
controllers	44
with repeats	55
Pause	20, 35
PB window	31
PG window	31, 33, 60
Pitch bend	31
Pitch display	28, 32
Pitches...	48
Play	20, 34
in QuickScore	80
in step-time	37
keys	34
menu	36
right mouse	35
Play Loop	24, 36
Play measure	28
Play Metronome	38
Play position cursor	29
Play Screen	80
Play when Selecting	64
Pr	31
Pressure see Aftertouch	
Print File	77
Print Line	77
Printers	80
Program changes	12, 31, 33, 60, 65
editing	52
in step-time	37
names	69, 70
recording	22
Pull down menus	6, 59

Q

Quantization	21, 28, 49
in QuickScore	79

Drawing *continued*
 controllers 46
 notes 44
 with repeats 55
 Drum machine
 key assignments 67, 90
 synchronization 64
 Drumkit... 61, 67
 Duration
 editing 45, 51

E

EDIT button 21
 Edit menu 47
 Edit windows 7
 Editing 41, 51
 controllers 46
 quantization 49
 Environment... 61, 63
 Erase current recording 22
 Erase Last Track 38
 Exit 77
 Exit buttons 7

F

Fast-forward 20
 File 57
 File types 57
 Fill 55
 Fill Left 55
 Fill Right 55
 Foot pedal 31
 FT window 31
 Full Score 80
 Function keys 29
 in step-time 37

G

Get Backup 60
 GIST 61
 GP 30
 Grand staff 80
 Graphic editing display 27
 GROUP 22, 24, 25, 30

H

Halve 54
 Hard disks 7, 71
 Horizontal ranges 39, 52
 Copy 51
 Delete 50
 Erase 50
 playing 35
 selecting 53
 Horizontal scroll bar 29

I

Icons

Draw 44
 Edit Duration 45
 Edit Pitch 45
 Edit Velocity 45
 Erase 45
 Left Mouse 41
 Move 45
 Paste 44
 Quantize 28
 Tape recorder 28
 Zoom 28
 Ignore Tempo Events 65
 Insert Space... 51
 INST.PRГ 70
 Instant Replay 35, 65
 INSTRUMENT 23
 Instruments... 61, 69
 Internal Sounds... 61

J

Jump to Bar... 80

K

Key disk 8
 Key signature 79
 Keyboard icon 32, 45, 52

L

Load .ALL File... 59
 Load MIDI File... 58
 Looping 36, 38

Chapter 7 The File, Settings, and Utilities Menus	57
The File Menu	57
The Settings Menu	59
The Utilities Menu	60

Chapter 8 The Environment Window	63
-----------------------------------------------	-----------

Chapter 9 The Instrument and Drum Kit Lists.....	67
---------------------------------------------------------	-----------

Chapter 10 The Multi Program Environment and QuickScore.....	71
---------------------------------------------------------------------	-----------

Loading MPE Programs.....	71
Deleting MPE Modules.....	72
Memory and the MPE	72
MPE Applications	74
Scoring with QuickScore	75
Starting QuickScore.....	75
QuickScore's Menus	76
Moving Within the Score.....	81
A Typical QuickScore Session.....	81

Appendix 1 Service and Support.....	83
--------------------------------------------	-----------

Appendix 2 Useful Tables.....	87
--------------------------------------	-----------

Key Functions.....	88
Standard Drum Note Assignments.....	90
MIDI Controller Assignments	91

Index.....	93
-------------------	-----------

Index

A

- Add Controller... 39
- Aftertouch 31
 - recording 22
- .ALL files 57, 59
- All Notes Off 35
- Append... 58
- AT window 31
- Audible Metronome 38
- Auto Record 24, 38
- Auto Scroll 36
- Auto-correction *see* Quantization

B

- Backup 60
- Backup disk 84
- Bar lines 29
- Bar number 29
- Bar:Beat:Step display 21
- BC window 31
- Beat
 - in QuickScore 78
 - steps per 64
- Breath controller 31
- Buttons 7

C

- Ch 31
- Change Length... 61
- Choose Printer... 80
- Clef 79
- Clock resolution 10, 64
- Color monitor 8
- Colors... 39
- COMMENTS 23
- Conducting Tiger Cub 32
- Conductor track 6, 29, 33, 39

- Conductor track *continued*
 - muting 65

- Connections 2
- Control keys 7
- Controller strip 32, 52
- Controllers 12
 - adding to the display 32, 39
 - assignments 91
 - drawing with the mouse 46
 - editing with the mouse 46
 - pasting 44
 - recording 22
 - windows 31, 32

- Copy 48
- Copy Left 54
- Copy protection 7, 84
- Copy Right 54
- Copy Track... 60
- Copy/Delete Range... 50
- Copyist 72
- Count-in 24, 64
- .CUB files 57
- CUB.IN(F) 72
- CUE button 22
- Cue loops 22
- Cut 48
- Cut and paste editing 44, 48

D

- Data fields 7
- DEFAULT.CST 59
- Delete Track... 60
- Desk accessories 72
- Display menu 38
- Display redraw 39
- Display... 77
- Double 54
- Draw Attributes... 59
- Drawing 59

Chapter 1

Getting Started with Tiger Cub

Thank you for buying Tiger Cub, from Dr. T's Music Software. Tiger Cub is a MIDI sequencer program, which is designed for recording, editing, and playing music on one or more synthesizers or other electronic instruments using the Musical Instrument Digital Interface (MIDI) standard. Tiger Cub lets you record and play music using an interface that simulates a twelve track tape deck, edit the music in an enhanced "piano roll" type display, and then view or print the music in standard musical notation.

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Using the Manual

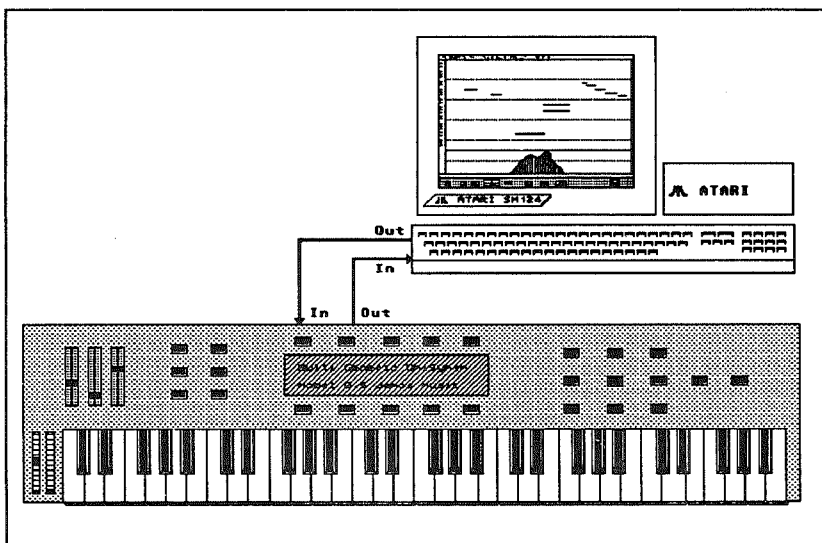
In addition to this chapter, the manual contains an introduction to MIDI sequencing, a tutorial chapter that takes you on a guided tour of some of Tiger Cub's features, and several reference chapters that describe each feature in detail. You should start by reading Chapter 1, and, if you've never used a MIDI sequencer before, Chapter 2 as well. Next, run through the tutorial in Chapter 3, then explore Tiger Cub using the menus, the manual, and the index. This way, you'll quickly learn how to use all of its features.

Because we at Dr. T's are continually improving our programs, the program on the disk you've purchased may have some new features or enhancements not mentioned in the manual. **These changes are documented in a file called README.DOC on your program disk, which you should read or print before you get too far into the manual.** Refer to this file if the program does not seem to agree with the manual.

Getting Connected

Before you can do anything with Tiger Cub, you'll have to connect your equipment together. Depending on the exact nature of your gear, there are several different ways you might want to connect things, but all of these variations really boil down to two different schemes, as shown in the following diagrams.

If you have only one MIDI instrument, use the connection scheme shown in the following diagram. (What could be simpler?)



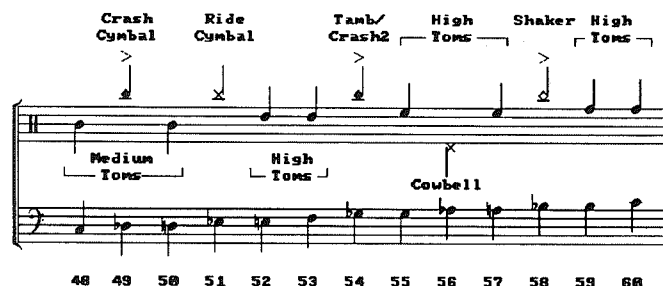
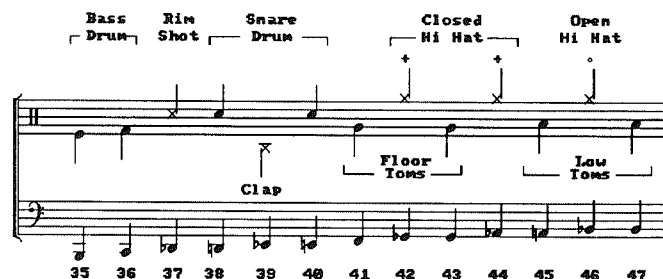
Connecting a Single Instrument

If you have more than one MIDI instrument, you'll need to select one of them to be your *master controller*. This will be the keyboard that you will use for recording on all of your other instruments, so it should be the best keyboard that you have. All of your other instruments should be connected as shown on the following page, with each instrument's MIDI in jack connected to the MIDI thru jack of the instrument ahead of it. (It doesn't really matter what order you connect the instruments in.)

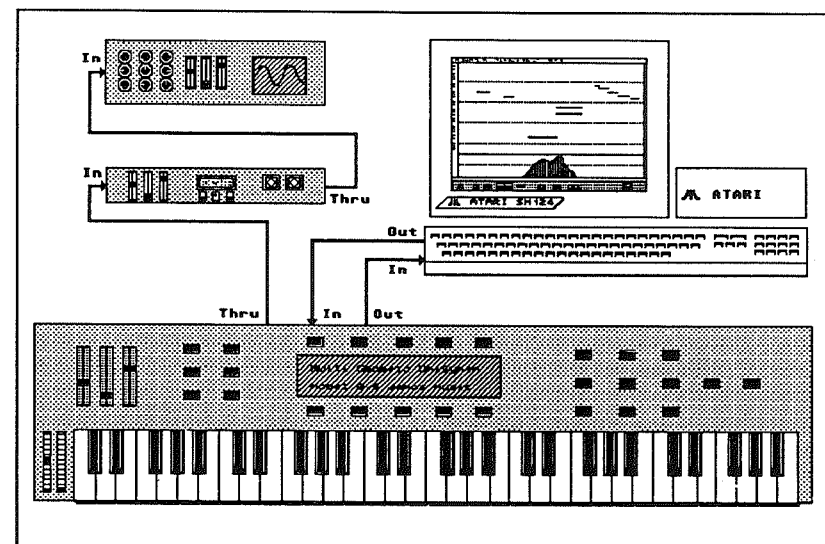
MIDI Controller Assignments

Controller Name	Number	Range
Modulation Wheel	1	0--127
Breath Controller	2	0--127
Early DX7 Aftertouch	3	0--127
Foot Controller	4	0--127
Portamento Time	5	0--127
Data Slider	6	0--127
Main Volume	7	0--127
Balance	8	0--127
Pan	10	0--127
Expression	11	0--127
General Purpose #1	16	0--127
General Purpose #2	17	0--127
General Purpose #3	18	0--127
General Purpose #4	19	0--127
LSB's for #'s 0--31	32--63	0--127
Sustain Pedal	64	0 or 127
Portamento On/Off	65	0 or 127
Sostenuto Pedal	66	0 or 127
Soft Pedal	67	0 or 127
Hold 2	69	0 or 127
Reset All Controllers	79	0
General Purpose #5	80	0 or 127
General Purpose #6	81	0 or 127
General Purpose #7	82	0 or 127
General Purpose #8	83	0 or 127
Tremolo Depth	92	0--127
Chorus Depth	93	0--127
Celeste Depth	94	0--127
Phase Depth	95	0--127
Data Increment	96	0 or 127
Data Decrement	97	0 or 127
Non Reg. Parameter MSB	98	0--127
Non Reg. Parameter LSB	99	0--127
Reg. Parameter MSB	100	0--127
Reg. Parameter LSB	101	0--127
Local Control On/Off	122	0 or 127
All Notes Off	123	0
Omni Off	124	0
Omni On	125	0
Mono On (0 = Omni Off)	126	0--16
Poly On	127	0

Standard Drum Note Assignments



<u>Drum</u>	<u>Note #'s</u>	<u>Notes</u>
Bass	35, 36	B1, C2
Snare	38, 40	D2, E2
Rim	37	C#2
Claps	39	D#2
Floor Tom	41, 43	F2, G2
Low Tom	45, 47	A2, B2
Mid Tom	48, 50	C3, D3
Hi Tom	52, 53	E3, F3
Open Hi Hat	46	A#2
Closed Hi Hat	42, 44	F#2, G#2
Crash cymbal	49	C#3
Ride cymbal	51	D#3
Tamb/Crash 2	54	F#3
Cowbell	56	G#3
Shaker	58	A#3



Connecting Several Instruments

DO NOT use your MIDI out jacks in place of the thru jacks shown in the preceding diagram. If some of your instruments don't have MIDI thru jacks, you'll need to buy an additional MIDI thru box to connect things properly. (If only one instrument lacks a MIDI thru, you can just connect that at the end of the chain, and you won't need a thru box.)

When you have several instruments connected like this, you'll need to turn on MIDI merging or rechannelization, as described on page 65. You may also need to turn local control off on your master keyboard; see your manual for details on how to do this.

Important Note Regarding MIDI Cables

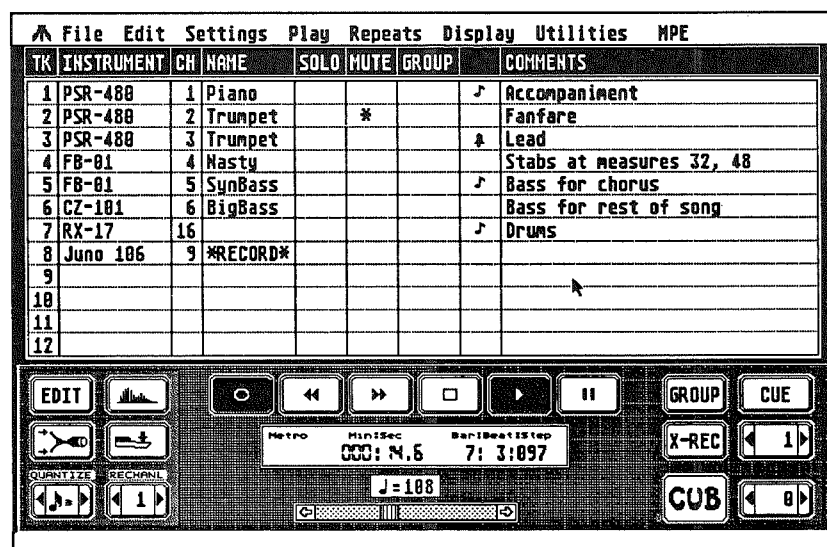
The Atari ST uses a non-standard MIDI output jack, which can cause problems when used with certain (also non-standard) MIDI cables. If **strange things happen to your instruments when you play on your master keyboard, you probably have a non-standard MIDI cable!** Rapco MIDI cables are known to work properly with the ST, while Hosa cables will definitely cause problems; we're not sure about other brands. You should also avoid the use of DIN audio cables, such as those sold at Radio Shack. These won't cause any MIDI problems, but they can induce hum and other nasty sounds in your audio output.

Around Tiger Cub

Tiger Cub has two main screens, each of which performs different functions. The first screen you'll see is called the *tape recorder screen*, because it simulates many of the functions of a multi-track tape deck. The other screen is the *graphic editing screen*, which allows you to view and edit the contents of a single track. Many of the functions of these two screens overlap (in fact, each screen has more functions than are found on many other so-called "entry-level" programs), yet you will find that each is optimized for certain aspects of the music-making process.

In addition to the two main screens, Tiger Cub includes an additional program module, called QuickScore, that is used to view and print music in standard notation. QuickScore is actually a separate program that can be executed from within Tiger Cub itself, so it acts just like an extension of the sequencer.

The tape recorder screen, which is the screen you will see first when you start Tiger Cub, contains twelve lines that display important information about each of Tiger Cub's twelve MIDI tracks, along with a *control panel* at the bottom of the screen, that contains many controls that are similar to those found on a tape deck, as well as several that are uniquely designed for sequencing.



The Tape Recorder Screen

GRAPHIC EDITING MODIFIER KEYS

Left Mouse Note Editing

<Left Shift>	Time move only
<Right Shift>	Pitch change only
<Alternate>	Repeat draw/paste/select (to end of track)
<Control>	Repeat draw/paste/select (entire track)

Right Mouse Controller Drawing

No modifiers	Continuous draw
<Left Shift>	Single event
<Right Shift>	Insert zero

Pasting

<Right Shift>	Don't transpose
---------------	-----------------

Keyboard Draw

Left Mouse Controller Editing

No modifiers	Set value
<Right Shift>	Set to zero
<Alternate>	Select
<Control>	Delete

<Right Shift>	Play only
---------------	-----------

Keyboard Repeat Draw

<Left Shift>	Fixed pitch
--------------	-------------

TAPE RECORDER KEYS

Play Keys

<Space>	Start/stop
<Esc>	Pause
<Tab>	Cue
<~>	Panic button
<F2>	Record

Other Keys

<Ctrl-T>	Edit screen
<Numeric +>	Fast forward
<Numeric ->	Rewind
<,>	Tempo down
<.>	Tempo up
<Backspace>	Rechannelize
<<>	Rechan channel dn
<>>	Rechan channel up

GRAPHIC EDITING KEY FUNCTIONS

Duration Edit Keys

<->	-1 pixel
<_>	-4 pixels
<=>	+1 pixel
<+>	+4 pixels

Velocity Edit Keys

<[>	-4
<{>	-16
<]>	+4
<}>	+16

Other Editing Keys

<Crsr Left>	Move one pixel left
<Crsr Right>	Move one pixel right
<Crsr Up>	Pitch/PG +1
<Crsr Dn>	Pitch/PG -1

Display Keys

<!>	Redraw screen
<Numeric .>	Redraw screen from mouse position
<Insert> <1-12>	Change track display
<F1>	Back 1/2 screen
<F2>	Ahead 1/2 screen
<F3>	Beginning of piece
<F4>--<F10>	Programmable locations

Selection Keys

<\>	Select all notes
<?>	Range entire track
<Numeric (>	Range to left
<Numeric)>	Range to right
<Numeric />	Range from current play option

Play Keys

<Space>	All
<Numeric 1-9>	1-9 measures
<Numeric 0>	Mouse measure to end
<Numeric ->	First selected event to end
<Numeric +>	Left side of screen to end
<Numeric *>	Selected events
<Return>	Horizontal range
<Enter>	Screen contents
<Tab>	Repeat last partial play
<Shift-Tab>	Repeat last partial play/extend to end
<Esc>	Pause
<~>	Panic button

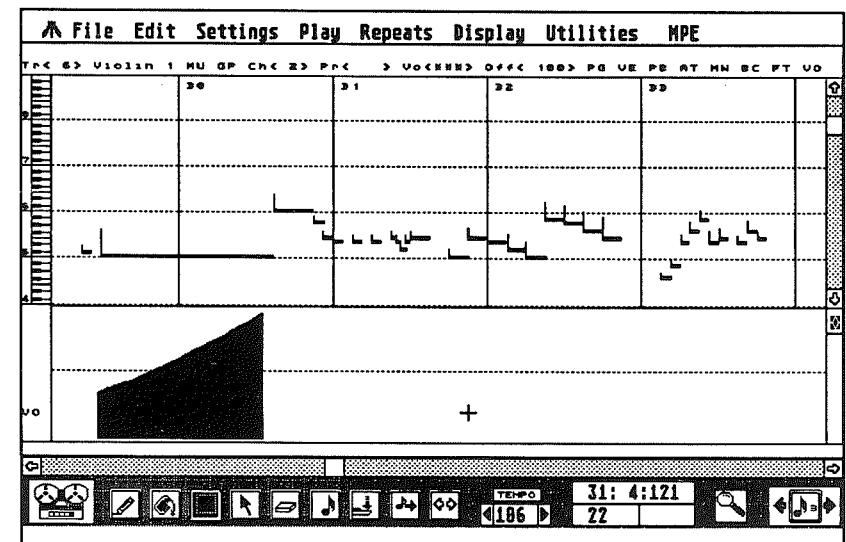
Step-time Keys

<F1>	Play last step
<F2>	Play step-time recording
<F3>	Double repeat time
<F4>	Halve repeat time
<F5>	Insert a rest
<F6>	Delete last step
<F7>	Programmed duration
<F8>	Staccato
<F9>	Half legato
<F10>	Legato
<Space>	Play all

Copy/Repeat Selection

<Control-Crsr Left>	Copy to left
<Control-Crsr Right>	Copy to right
<Control-Crsr Up>	Fill track
<Control-Insert>	Fill to left
<Control-Clr/Home>	Fill to right

The heart of Tiger Cub is the graphic editing display. This consists of a single *track window*, which shows the notes in the track, as well as an optional *controller window*, which displays one of several types of continuous controllers that may exist in a track. The *master controls* area, at the bottom of the screen, contains several buttons for selecting various editing operations and for changing the display magnification. The *menu bar*, at the top of the screen contains menus that do all sorts of things. The graphic editing screen also contains two scroll bars for moving within a piece of music—one horizontal, for viewing different "time slices" of the piece, and one vertical, for viewing different pitch areas within a track. The following diagram shows the major components of Tiger Cub's graphic editing screen.



The Graphic Editing Screen

Track Organization

Tiger Cub organizes its MIDI data in twelve parallel tracks. Each track contains data (note-on and -off messages, controllers, program changes, etc.) for a single MIDI channel only*, though different tracks may be set to the same MIDI channel. Tracks can be turned on and off individually or as

* Actually, each track can contain data on several channels, but most of the time, Tiger Cub "thinks" each track contains only one channel. For most purposes, you may consider each track to be a single-channel track.

part of a group. Each track has its own line on the tape recorder screen, and tracks may be displayed one at a time on the graphic editing screen.

In addition to the twelve MIDI tracks, Tiger Cub also has an additional track, called the *conductor track*, which contains tempo and time signature information. This track is only visible from the graphic editing screen, though it will affect playback on both screens.

Note and Controller Display

Notes are displayed in Tiger Cub as horizontal bars, with vertical *velocity stems*. The length of the bar indicates the duration of the note, and the height of the velocity stem shows the note-on velocity. Both of these aspects of the note can be edited individually with the mouse.

Controller and tempo events are shown as vertical lines in their respective windows. As you probably guessed, the height of the line determines the value of the controller at that time. When several controller events occur one after another, the individual lines resemble a continuous curve, which is what you should hear when the sequence is played back.

Left and Right Mouse Functions

On Tiger Cub's graphic editing screen, the left and right mouse buttons serve two distinct functions, depending on whether you are working with notes, or controller data. When dealing with notes, the left mouse button is used for editing, drawing, and selecting, and the right mouse button is used to play the song. When working with controllers, the left mouse button is used for editing, and the right mouse is used for drawing. The operation of both mouse buttons is explained in detail later in the manual.

Because of the distinction between the operations of the two mouse buttons, we have been very careful in describing them in this manual, and you should be equally careful when reading these descriptions. When either mouse button will do a job, we will use the term "click" to describe a single quick press and release on either mouse button, or "right click" or "left click" to denote specific buttons. Similarly, "left drag" means to press and hold the left mouse button while you move the mouse, etc.

Menus and Edit Windows

Many of Tiger Cub's functions are accessed through a set of GEM menus located at the top of the screen. These menus operate just like those in other ST programs, with one additional twist. If you like, these menus can be turned into pull-down menus (just like the menus on that computer

Appendix 2

Useful Tables

The next few pages contain tables of certain reference material that you may want to keep handy when learning the program. If you wish, you can make copies of these pages to keep near your computer, to avoid wear and tear on the manual itself.

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with the one-button mouse), so that they don't drop into Tiger Cub's graphic display when you don't want them to. Several menu items also have a letter or two to their right, which means that menu item can be selected by pressing that key or key combination. (The symbol "^" refers to the <Control> key.) Many menu items are not available in both screens.

Many of the menu items cause an *edit window* to appear on the screen, which allows you to enter settings and choose options for the edit operation. Edit windows contain several different editable objects. *Data fields* are used for numeric values, *buttons* and *radio buttons* are used to select options, and *exit buttons* are used to perform one of several related operations.

Data fields are always labeled using text followed by a colon, and are shown in light blue on the color monitor. Data fields are selected for editing with the mouse or cursor keys, and may be changed either by typing from the keyboard, or by dragging the right mouse button. Dragging a value with either <Shift> key down moves by larger increments, or holding down <Control> makes the parameter jump to its highest or lowest value.

Buttons are little square boxes with text labels. Toggle buttons are boxes with dots in the middle, while radio buttons (so named because of their similarity to the station selectors on old car radios) are displayed as boxes with a notch in one corner. Left clicking on a toggle button (or its label) simply turns it on or off, while left clicking on a radio button turns it on and turns off any others in the same group. If a window has two or more independent groups of radio buttons, you can tell them apart by the orientation of the notches.

Finally, the edit operation is executed by left clicking on the exit button labeled OK. You can also leave the edit window by holding down a <Shift> key and left clicking on any other button in the window, or by pressing <Return>. If the buttons in the window aren't all set up, you'll find that you won't be able to leave the window. Left click on the CANCEL button or press the <Undo> key to leave the window without performing the operation. Some edit windows may have other exit buttons which are used to redraw the window or to execute some other operation, such as loading a file.

Hard Disk Installation and Copy Protection

The disk which contains Tiger Cub is copy protected, and must be inserted in drive A when you boot the program. If you wish, you can copy

the program and its associated files to another floppy, and use this as your working disk; the program will ask you to insert the original (or "key") disk at the appropriate time. You may also copy Tiger Cub to a hard disk, though you will still need to insert the key disk in drive A when prompted. (This is only necessary when you first start the program; you can remove it once the program is started.) If you want to run the program from a hard disk, you **MUST** place the files DEFAULT.CST, CUB.INF, TIGERCUB.TXT, and TIGERCUB.RSC, along with MONOCUB.IKN and MONOCUB.IKT, or COLORCUB.IKN and COLORCUB.IKT (for monochrome or color monitors, respectively) in the folder containing TIGERCUB.PRG.

QuickScore is not copy protected, and can therefore be copied to another floppy disk or a hard disk with no extra considerations. However, the version supplied with Tiger Cub will only run in Tiger Cub's MPE. It cannot be executed from any other Dr. T's programs, nor will it work as a stand-alone program.

Color and Monochrome Monitors

Tiger Cub is designed to work with both color and monochrome monitors; however, due to the reduced resolution of the color monitor, we had to make a few compromises when running in this mode. The main difference is the number of octaves that can be displayed on the screen. In monochrome, up to eight octaves may be displayed, while in color mode, fewer octaves are visible. The screen shots in this manual were all taken with a monochrome monitor, so they are a little different than what you'd see on a color screen. If you are really serious about your music, we suggest that you get a monochrome monitor for your system—they are *much* easier on your eyes than color monitors.

Starting Tiger Cub

To start Tiger Cub, first insert your Tiger Cub program disk in drive A, then double click on the icon labeled TIGERCUB.PRG. After a few seconds, the program will be up and running.

What To Do If Problems Arise

If you have problems with Tiger Cub that you are unable to solve with the help of the manual, Dr. T's maintains a customer service line staffed by experienced MIDI musicians. We are happy to help you with questions regarding Tiger Cub and any of our other programs, but due to the incredible variety of MIDI products available today, **we cannot answer questions regarding other manufacturer's hardware or software, including questions on the basic operation of GEM, the Atari ST, or any other computers or musical instruments.**

When calling Dr. T's for customer service, there are a number of things that you can do to help us help you, which can also save you money on your long distance bill. Here is a check list of things to have ready when calling Dr. T's:

- 1 - Your diskette registration number
- 2 - Your manual
- 3 - Computer turned on and Tiger Cub booted
- 4 - Any data related to the problem
- 5 - Information on your computer's disk configuration, monitor type, printer type, etc.
- 6 - Paper and pencil

When you call us, we will walk you through the program and ask you questions about what happens, so it is very important that you have this material at hand when calling. If you don't have this ready, we will ask you to call back later with the required information. After you've completed the checklist, call us at **(617) 244-1542** between 10 AM and 4 PM Eastern Standard Time, Monday through Friday.

Copy Protection and Backups

The disk containing Tiger Cub is copy protected, and must be inserted in drive A: when running the program from either the hard or floppy disk. We regret the necessity for copy protection, but experience has shown this to be the only way to deal with unauthorized distribution of our programs. **Software theft is a crime and deprives your fellow artists of their rightful income.** Because of this problem, we are much more fun to deal with if we have your completed warranty card in our hands when you call for technical support.

A single backup disk may be obtained for \$15 *in US funds only* when you send in your warranty registration card. You must include either your completed warranty card or your diskette serial number and a copy of the sales receipt with your request for a backup. There is a \$15 charge for the replacement of program disks that become defective more than 90 days after the date of purchase. We will only sell one backup disk to each customer, and you will be required to return either your backup or original disk when ordering updates or replacement disks.

When returning disks for replacement or updates, **please send the disk by UPS, Federal Express, Express Mail, or some other service that will allow you to trace the shipment.** We're sorry, but we cannot be held responsible for packages sent via regular US mail.

Dr. T's reserves the right to make improvements to the program without notice, and to make what we consider to be reasonable charges for updates.

Chapter 2 For the Beginner

What's a Sequencer?

A sequencer is a program for recording, editing, and playing music. Many have described the sequencer as being "like a tape recorder", and while this description does have some merit, it is not a complete description of its capabilities. Actually, a sequencer is (functionally speaking, anyway) sort of a cross between a tape deck and a human conductor and orchestra.

Like a tape deck, the musical information in a sequencer is usually organized as a group of parallel tracks, which all play simultaneously. However, unlike a tape deck, this information is stored not as actual sounds, but as pieces of digital information that represent musical events. An event can be pretty much anything that happens in a piece of music. Here are a few examples of the types of musical events that a sequencer works with:

- * Play a very loud C# in a certain octave, on a certain instrument, and hold it for a certain length of time.
- * Set the tempo to a certain value.
- * Select a new sound for a certain instrument track.
- * Change the volume of a particular instrument.

As the sequencer plays a piece of music, these events are sent out to any connected MIDI instruments, which then play notes based on their interpretation of these musical events. This is one of the ways in which a MIDI sequencer is significantly different from a tape deck, since a sequence recording that sounds great on one set of instruments may sound terrible on another set. (This is why we compare a MIDI sequencer to a conductor and a group of musicians. If you give an orchestra a complete score and their usual instruments, the results will be pretty good, but if you give them the same music and a collection of harmonicas and kazooes, the music will sound quite a bit different!)

One of the most important functions of a sequencer is its ability to allow you to edit the music you've recorded. Most sequencers use one of three different methods to display MIDI data for editing: the event list method, the notation method, or the graphic method. Event list editing makes use

of lists of MIDI events and numbers, which are then edited using techniques similar to those used in word processing. This allows MIDI events to be specified with a very high level of precision, but the event lists themselves can often be cryptic, and are certainly not very closely related to most people's idea of how music is written. On the other end of the spectrum are sequencers that make use of traditional music notation. This method is very easy to use, especially for those who are familiar with written music, since there is a strong correlation between what appears on the screen and what is printed on a sheet of music. However, musical notation can only represent a very small portion of the information that is contained in a musical performance, whereas a sequencer is capable of recreating every nuance of a piece of music. This means that notation-based sequencers are incapable of tapping much of the sequencer's music-making potential.

Graphic sequencers, on the other hand, bridge the gap between event list and notation editing systems, by providing a sequence display format that combines the precision and completeness of the former with the visual approach of the latter. This technique is more than a simple compromise between two better methods—it is a new means of displaying music that is uniquely suited to the way computers deal with musical information, and is quickly becoming the preferred method of doing business for most MIDI musicians, from beginners to professionals.

In case you hadn't guessed, Tiger Cub is a graphic sequencer. The heart of the program is the graphic editing display, where all of the important musical information handled by the program is displayed and edited. Notes and controller events are all displayed using a format that makes the meaning of each event obvious at a glance. In addition to the graphic display, Tiger Cub also lets you view and print your music using traditional notation, so you get the best of both worlds!

Sequencer Timing

Sequencer timing is a subject that can be confusing to beginners, especially those with a traditional music background. Standard musical notation uses a restricted set of symbols for displaying rhythmic values, so many musicians fall into the trap of thinking that all possible note timings can be sorted into any of the categories usually shown on a piece of sheet music—quarter notes, eighth note triplets, dotted thirty-second notes, whatever. In reality, however, the timings of notes played by musicians are only approximated by those little dots on the paper.

Because a sequencer has to be able to play music in the same way a musician would play it, it is necessary for sequencers (and the musicians

Appendix 1

Service and Support

This program and the associated documentation are copyright 1989 by Dr. T's Music Software. This program is licensed to be used on a single machine. It may not be copied without explicit written permission. If the program is transferred to another party, all backup copies must be transferred at the same time, or destroyed. This notice of copyright must be transferred if you transfer the program, and your license to use the program is terminated on transfer.

The diskette on which the program is furnished is warranted for ninety (90) days from the date of delivery. The program is not guaranteed to meet your requirements, and operation of the program is not guaranteed to be uninterrupted or error free. **In no event will Dr. T's Music Software be liable for any damages, including any lost savings, lost profits, or other incidental or consequential damages arising out of the use or inability to use this program, even if we have been advised of the possibility of damages. Dr. T's Music Software shall not be responsible for any damages claimed by any other party, resulting from the use or attempted use of this program.** All warranties implied are with Dr. T's, not your local dealer. If problems arise, call Dr. T's directly.

scores.) You should also make sure that there are no unused tracks between your recorded tracks, as these can cause QuickScore to become confused.

The next step is to use QuickScore's Display window to set the parameters for each track. In particular, you'll have to select the proper clef for each track, since the default clef (treble) is not going to be appropriate for some tracks. For piano parts, don't worry about the clef; instead, answer **Yes to Split Tracks?** Remember that if you are scoring a percussion part, your drum note assignments **must** match those used by QuickScore, as shown on page 90. (If they don't, you will need to edit the drum track(s) so that the proper notes are used for each drum. This won't sound right when played back on your system, but it will transcribe properly.) You may also want to adjust the **Quantization Amount** and set the answer to the **Extend** and **Clip** questions based on the contents of each track, as described earlier. You don't need to explicitly set the **Time Signature**, since QuickScore can get that from Tiger Cub, but you will need to set the **Key Signature**.

Once you've set all of the display parameters, you should use **Save Display** to save them in a disk file. (That way, if you decide to use QuickScore with this song at a later time, you won't need to re-enter all of the settings.) Now you can print the song using the **Print File** option, but before you do, it's a good idea to quickly look at different sections of the piece (especially the more complex sections) to make sure everything looks the way you want. If they don't, tweak the Display window parameters and/or sequence data until things look right, then print the score.

who use them) to divide time into much finer chunks than those used by music publishers. These chunks are called *steps*. A step is the smallest amount of time that the sequencer can recognize. Steps are usually defined as some fraction of the beat. In Tiger Cub, a beat is usually made up of 240 steps, though you can change this value if you want to. This implies that a note that is 240 steps long is equivalent to a quarter note, and that a note that is 160 steps long is equivalent to an eighth note triplet, etc. In most cases, Tiger Cub lets you deal with note timing in terms of traditional music terminology, though there are a few places in the program where it is helpful to understand the concept of steps.

The rate at which the sequencer's steps occur is called the *tempo*, and is controlled by a part of the program called a *clock*. The tempo is measured in beats per minute (or BPM), just as it is in traditional music.

What's a MIDI?

MIDI is a software and hardware specification for transmitting musical events in real-time. There are a veritable plethora of technical details regarding the MIDI specification that we could throw at you at this time if we wanted to dazzle you with our brilliance, but in all honesty, you don't need to know any of that stuff in order to get started making music with a sequencer. Instead, we'll concentrate on those aspects of MIDI that apply to Tiger Cub.

As you may have guessed from the previous section, MIDI deals with musical events. Musical events are transmitted as separate MIDI *messages*, the digital details of which you need not concern yourself with. There are several classes of MIDI messages, but the most important (and the ones which are used in Tiger Cub) are:

Note-on messages: These tell the receiving instruments what notes to play, and how loud to play them. The loudness of the notes is represented by a quantity called the *note-on velocity* (or *velocity*, for short), which corresponds to the force with which a key on a keyboard is struck.

Note-off messages: These tell the receiving instruments when to turn off notes that were turned on with note-on messages. Note that, in order to make up a complete (and finite) note, both a note-on and note-off message must be sent by the sequencer.

Continuous controllers: These carry information about the status of certain types of physical controllers that synthesizers deal with—for example, a sustain or volume pedal, or the funny little wheels and levers located to the left of the keyboard on most instruments. Judicious use of continuous controllers and velocity is what makes the difference between expressive music, and the stuff that comes out of digital watches and musical Christmas cards.

Program changes: These messages are used to select a new sound (or "program") on the receiving instrument.

Timing messages: These messages act as a sort of "system metronome", which keeps multiple sequencers and drum machines in the system in step with one another.

All of these message types, with the exception of the timing messages, can be sent on any of 16 different *channels* supported by MIDI. These channels act like mini MIDI cables within each MIDI cable: any instrument can be set to "listen" to only one or a few of these channels, and to ignore all others. This is what lets sequencers play several separate instrumental parts on different instruments, with only a single MIDI cable coming out of the computer. This also means that channel assignments and MIDI modes (which determine how many channels an instrument will "listen" to) are very important when setting your system up to play a certain piece of music.

If you'd like to know more about MIDI, here are some books that we can recommend. All are available from the MIX Bookshelf, at 1-800-233-9604, or 1-800-641-3349 in California.

MIDI For Musicians, by Craig Anderton

Music Through MIDI, by Michael Boom

Using MIDI, by Helen Casabona and David Frederick

initially, and try the **HP Inkjet** setting if this gives you problems. If you have problems printing on a 24-pin printer, you might want to try one of the 9-pin settings, since many 24-pin printers have a 9-pin emulation mode. If you are using the Atari laser printer, you must run the Diablo 630 emulation program (included with the printer) before starting Tiger Cub and QuickScore.

You may save your printer choice to a disk file by left clicking on **Save**. QuickScore will then automatically work with your printer in future sessions.

Moving Within the Score

In addition to the **Jump to Bar...** option discussed earlier, QuickScore allows you to use the scroll bars and certain keys to move within your score. The vertical scroll bar lets you view additional tracks when in **Full Score** mode, and the horizontal scroll bar lets you look at different measures, much as **Jump to Bar...** does. In addition, the following keys can be used to move within the score:

<Cursor Left>	Ahead one screen
<Cursor Right>	Back one screen
<Cursor Up>	Scroll up
<Cursor Down>	Scroll down
<Clr/Home>	Beginning of song

A Typical QuickScore Session

Displaying your music in traditional notation with QuickScore is simple: all you have to do is start QuickScore, and the track you're viewing will be transcribed instantly. However, if you want a full printout of a song you've done, then you'll need to spend a little time working with both the sequence data and QuickScore's Display window, in order to get the best possible results.

For this discussion, let's assume that you've completed your latest concerto, and that you'd like to print it out. After saving it (preferably in a couple of places—you DON'T want to accidentally replace it with the version you're playing with), the first step is to rearrange your tracks in the order you wish to have them scored, using Tiger Cub's **Swap Tracks...** option. As a general rule, the bass and drum parts should go at the bottom (in the higher-numbered tracks), with the lead instruments at the top. (There are no real rules for scoring rock bands or electronic pieces, but if you're doing something using traditional acoustic sounds, any book on orchestration should give you some idea of how to lay out such

parts, be sure your drum assignments match these, as discussed on page 68.

Transposition is used to match any transpositions that are traditionally used in notating certain instruments. For example, in most trumpet parts, the note that is written as C in a trumpet part is actually B flat, and would be transcribed that way by QuickScore. In order for such a part to be in tune when played by a trumpet player, the part must be transposed up two semitones before printing. This transposition does not affect the musical data in Tiger Cub. For more information on the appropriate clefs and transpositions to use with specific instruments, see any book on the instruments of the orchestra.

If **Split Track?** is set to **Yes**, QuickScore will display the track on a grand staff. A grand staff is a pair of staves joined by a bracket, one using a treble clef and the other a bass clef. This type of staff is used by the piano and other keyboard instruments, as well as the harp. The **Clef** selection is ignored if a grand staff is used.

Full Score

This option tells QuickScore to display every track in your song. When **Full Score** is selected, changing any setting in the **Display...** window will change that setting for all twelve tracks.

Single Track

This option tells QuickScore to display a single track. After you left click here, a small edit window will allow you to select a track. When **Single Track** is selected, most of the options in the **Display...** edit window will affect only that track.

Play Screen

This option will play the music that is shown on the screen. The music will loop until you press a key or the left mouse button. You may also play the music on the screen at any time by pressing the <Space bar>.

Jump to Bar...

This lets you change the first measure (bar) that is shown in the screen display.

Choose Printer...

This option tells QuickScore what type of printer you are using. QuickScore can print on two different types of 9-pin dot-matrix printers, NEC-compatible 24-pin dot matrix printers, the Atari SLM804 Laser printer, and HP DeskJet, LaserJet+, and LaserJet Series II printers. For most 9-pin dot-matrix printers, you should select the **Epson** variant

Chapter 3

A Guided Tour

By now, you're probably itching to make some music with Tiger Cub. In this chapter, we'll lead you by the hand through the basics of recording, editing, and printing a song using Tiger Cub.

The first step is to boot Tiger Cub, as explained at the end of Chapter 1. Once you've started the program, you'll see the tape recorder screen. This is where recording usually takes place in Tiger Cub.

Recording

Let's start out by recording some music. Before we can record a song, we must set the length of the song. Pull down the **File** menu, then left click on **New....** In the edit window that appears, enter 8 for the song length, then left click on **OK**. Now all we have to do to begin recording is to play something on our MIDI keyboard. Play a short little melody ("Happy Birthday", "In-A-Gada-Da-Vida", or whatever comes to mind—it doesn't matter at this point), and Tiger Cub will start to record. Continue playing until Tiger Cub stops recording at the end of the eighth measure.

The basic procedure for recording on the remaining tracks is the same as what we just did. However, you might have noticed that it was just a little hard to play in time with the metronome, since you didn't have a chance to hear it before you began to play. Tiger Cub has a special feature, called a count-in, that lets you hear the metronome before you begin to play. To activate the count-in, pull down the **Utilities** menu, and left click on the item labeled **Environment....** In the lower left part of the window that appears, under **PLAY SETTINGS**, you'll see a setting labeled **Count-in**. Left click on the number to the right of the **Count-in** label, then type the number 4, followed by <Return>.



Now Tiger Cub will play four beats of the metronome before it starts to record. Let's record another track using a count-in. First, left click on the **Record** button (shown above), then left click on the **Play** button (at the opposite end of that group, with the right-pointing arrow). Tiger Cub will play four metronome counts, and then begin to record. You can start to

play at any time after the counters in the lower part of the screen start to roll.

Repeat this procedure to record a few more tracks. Again, it doesn't matter what you play at this point--soon enough, you'll be recording real music, but for now, anything will do. Once you've recorded three or four tracks, we'll learn how to turn tracks on and off.

First, let's set Tiger Cub to loop through the short "song" we've recorded. Pull down the **Play** menu, then left click on the item labeled **Play Loop**.

You probably noticed that a number appears under the letters **CH** each time you start to record a track. These numbers are the MIDI channel that your keyboard is transmitting on. Each line corresponds to a different track. To the right of the **CH** boxes are two columns labeled **SOLO** and **MUTE**, which are used to silence (or *mute*) one or more tracks. Left click on the **Play** button again, and then left click in the box under **MUTE** for one of the tracks. You'll notice that that track is no longer playing. Now left click in the box under **SOLO** for one of the tracks. When you solo a track, all of the other tracks will be muted, and you'll only be able to hear the soloed track. Play with these settings for each track, then turn all of the tracks back on.

There are several other controls on this screen, which are described in detail later in this manual. Let's take a quick look at a few of them. While Tiger Cub is playing, left click on the horizontal slider at the bottom of the screen, and drag its handle back and forth. This slider controls Tiger Cub's tempo, or playback speed. Now left click on the button to the right of the **Play** button (the one with two vertical bars). This is the **Pause** button, which causes Tiger Cub to pause until you left click on the button again. The two buttons with a pair of arrows are the **Fast Forward** and **Rewind** buttons--left click on them to see how they work. Finally, the button with a square box in it is the **Stop** button. Left click on this button, and we'll be ready to edit the music we've recorded.

Editing





Before we begin editing, mute all of the tracks we've recorded except track 1. (This way, we can edit track 1 without hearing the other tracks.) With that done, left click on the button labeled **EDIT**, in the lower left corner of the screen.

The screen that appears is Tiger Cub's graphic editing display. The horizontal bars are the notes you recorded on track 1, and the vertical lines attached to each note represent the notes' velocities. Tiger Cub lets

suppose that you've recorded a sequence of short, clipped eighth notes, interspersed with the occasional sixteenth note. If the **Quantization Amount** (described in the next paragraph) is set to sixteenth notes, the eighth notes will appear as sixteenth notes followed by sixteenth rests. If **Extend Isolated Notes?** is set to **Yes**, these notes will be transcribed properly. Isolated notes are extended to the start of the next note, or to the start of the next beat, whichever comes first.

Quantization Amount sets the minimum note value that will appear in the display, and aligns the notes to the specified value. For most music, this should be set to **Sixteenth** or **Eighth**. If this is set to **None**, the minimum note size will be a sixty-fourth note, and, more importantly, notes will not be quantized to the nearest "reasonable" value. **None** is handy if you have quantized your music within Tiger Cub, and wish to print music that is quantized to some value that is not available here--for example, to triplets. Please note that, if you have *not* quantized within Tiger Cub, the use of **None** will probably result in very messy looking music. You should also be aware that QuickScore will not add the "3" and associated grouping symbol above any triplets; you'll have to do this by hand if you wish to transcribe triplets.

As you may have guessed, **Key Signature** lets you set the key signature to be used for the transcription, and **Time Signature** does the same for the time signature. The numerator and denominator of the time signature are entered separately. The time signature used by QuickScore will default to the initial time signature in Tiger Cub when you first enter QuickScore, though you can change it here if you wish. (Time signature changes in QuickScore are NOT reflected in Tiger Cub.)

Treble	Bass	Alto	Drum	The Clef , Transposition , and Split Track? options affect the way that pitches are written for each track. They are only available if a single track is
				

being displayed. The clef is the symbol at the beginning of each staff that tells the musician what pitch range the instrument plays in. The choices for **Clef**, and the corresponding symbols, are shown above. The default (and the clef which is used for most instruments) is **Treble**. **Bass** is obviously used for bass instruments, while **Alto** is used less frequently for instruments such as the viola. The **Drum** clef is used for drum and percussion parts, and also tells QuickScore to use a special set of symbols and staff positions that denote certain percussion instruments. These symbols, and the MIDI note numbers and drums they are assigned to, are shown on page 90. If you wish to use QuickScore to print drum

Transposition, and Split Track? items are only available if you have selected **Single Track** in the **Options** menu.

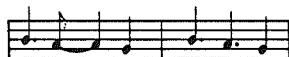
The **Beat** setting lets you specify the basic beat value for your music. This should almost always be left at its default setting of **Quarter**. Other values may be needed if you have specified an oddball time signature in Tiger Cub using the **User** option in the Time Signature window. If the **Beat** value you have specified is not appropriate for the time signature you've chosen, an error message will occur.

Bars Per Line lets you determine how many measures will be printed on each line. Generally speaking, this should be set to something between 3 and 5.

Include Bar Lines? allows you to eliminate the bar lines in the display. This should almost always be set to **Yes**.

If the answer to **Join Stems?** is **No**, then each note will be printed with its own individual flag, a method which is occasionally used for scoring vocal melodies, especially in church music. If the answer to this question is **Yes** (the usual answer), beams will be used to join the stems of the notes.

Use Ascending or Descending Stems? lets you determine whether the music will be transcribed with stems that go up from the note head (**Ascending**), stems that go down from the note head (**Descending**), or a combination of the two (**Both**). Unless you have a particular reason for setting the direction of the stems, this should be set to **Both**.



This diagram illustrates the difference between a **Yes** and **No** answer to **Tie Syncopated Notes Over Beat?** If the answer is **Yes**, notes that start off the beat and extend over a beat boundary will be broken into two tied notes, as in the first measure of the example. The choice is strictly a matter of personal preference.

The next two questions affect the way durations are transcribed. **Clip Durations to Start of Next Note?** is especially handy for legato monophonic parts, as it corrects the transcription problems that occur if a note hangs on past the start of the next note, a very common occurrence. Set this to **Yes** for monophonic parts, or **No** for polyphonic instruments. **Extend Isolated Notes?** is used to extend staccato notes to the next note or beat boundary. As an example of the type of problem this prevents,

you edit these notes in several ways. Let's start out by editing a few individual notes.



At the bottom of the graphic editing screen are several buttons. Left click on the button shown to the left, then press and hold the left mouse button on any note. You'll see that two things happen: the note becomes a dashed bar, and its vertical position will change as you move the mouse. You will also be able to hear the note as it moves.

The icon we've selected is called the *Edit Pitch* icon, because it allows us to change the pitch of the note. The note's appearance has changed to indicate that it is the selected note. The note will continue to follow the mouse as long as you hold down the mouse button. Try moving other notes up or down in pitch, and note that the pitch corresponding to the mouse's position is displayed at all times in an indicator at the bottom of the screen.



Now left click on the icon shown to the left, and left click on another note. This icon lets you change the duration, or length, of any notes you left click on.

Several of the icons at the bottom of the screen tell Tiger Cub that you'd like to edit a single note, like the two we just tried out. However, Tiger Cub also lets us edit several notes at a time. To do this, though, we need a way to select more than one note.



Left click on the icon shown to the left. This icon is called the *Select* icon, because it lets us use the mouse to select several notes. Now position the mouse cursor above and to the left of a group of notes and, while holding down the left mouse button, drag the mouse across the notes you'd like to select. A box will appear while you're doing this, which makes it easy to see the notes you are selecting. Now release the mouse button, and the notes will be selected.

Once notes are selected, there are several things we can do with them. The simplest thing we can do is move them with the cursor control keys. Press any of the ST's four cursor control keys, and you'll see the selected notes move in the appropriate direction. The <-> and <+> keys on the QWERTY keyboard can be used to change the durations of the selected notes, and the <[> and <]> keys will change their velocities.

The items in the **Edit** menu can also be used to edit the selected notes. Pull down the **Edit** menu and select **Pitches...**, and a window will appear. Enter 12 for the **Amount**, then left click on **Transpose Up**, followed by **OK**, and the selected notes will be transposed up by an octave.

You're probably wondering if we have to go back to the tape recorder screen to hear these changes. That's not necessary with Tiger Cub, because it lets you play the music from the graphic editing screen; in fact, you can even edit the music while it is playing, and hear the changes instantly!

To see how this works, press the <Space bar>. This starts Tiger Cub. Now select the *Edit Pitch* icon again, and start moving some notes around. As you move them, you'll hear the music change. Try the same thing with the *Edit Duration* icon. When you're tired of this, press the <Space bar> again to stop playback.

The editing screen has a huge number of functions, which we don't want to cover in any detail right now. (Otherwise, this chapter would be the size of a small-town phone book!) Still, there are a few controls that you should play around with, before we go on to printing music. At the bottom of the screen is a horizontal scroll bar, which lets you view different "time slices" of the music. Similarly, the vertical scroll bar on the right side of the screen lets you view different pitch ranges. The magnifying glass icon in the lower right part of the screen lets you zoom in or out on the music. Left click on the magnifying glass to zoom in, or right click to zoom out. The pencil icon, in the lower left corner of the screen, lets you draw notes on the screen with the mouse. Experiment a little with all of these controls, then we'll be ready to print the music we've recorded.

Printing Music

Tiger Cub uses a special program called QuickScore to print music. This program can be loaded as part of Tiger Cub with the **MPE (Multi Program Environment)** menu. QuickScore is on a different disk than Tiger Cub itself, so you'll need to remove the Tiger Cub disk from drive A, and insert the QuickScore disk. Pull down the **MPE** menu, then left click on **New....** A file selector box will appear. Select the file QUICKSCR.INF from the QuickScore program disk, then left click on **OK**.

Tiger Cub will take a few seconds to load QuickScore, which will then begin to convert (or *transcribe*) the data in Tiger Cub to standard notation. Soon, the music you recorded on track 1 will appear in standard musical notation!

QuickScore has several options for optimizing the appearance of your music, but for now, all we want to do is print it. Pull down the **Options** menu, then left click on **Choose Printer....** Select the type of printer you're

Print File

This prints the song. If QuickScore's display only shows a single track, then only that track will be printed; otherwise, the full score is printed. You may press the <Esc> key at any time to cancel printing.

Print Line

This prints the music that is displayed on the screen, as well as any other tracks that may be not be visible due to the height of the screen. As with **Print File**, it will print either a single track or the full score, depending on what is displayed.

Exit

This takes you back to Tiger Cub. As with any other MPE program, the data in QuickScore is not disturbed by this operation, and you may return to QuickScore by selecting **QSc** from Tiger Cub's **MPE** menu.

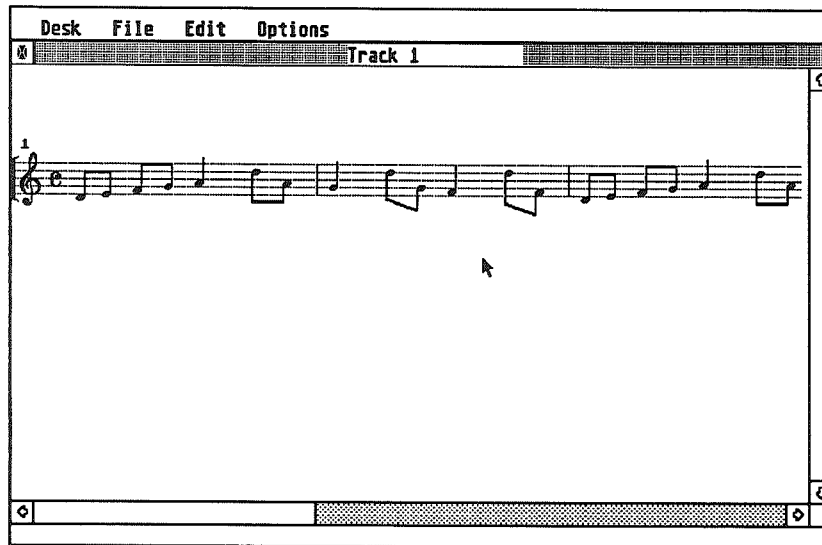
Display...

This menu item is the only part of QuickScore that is the least bit complicated. It is used to determine how the music will be displayed. After you select **Display...**, the following edit window will appear.

Beat:	Quarter
Bars Per Line:	4
Include Bar Lines?	Yes
Join Stems?	Yes
Use Ascending or Descending Stems?	Both
Tie Syncopated Notes Over Beat?	Yes
Clip Durations to Start of Next Note?	Yes
Extend Isolated Notes?	Yes
Quantization Amount:	Sixteenth
Key Signature:	2 Flats
Time Signature:	3 4
Clef:	Treble
Transposition:	None
Split Track?	No
<input type="button" value="OK"/> <input type="button" value="Cancel"/>	

The Display Window

All of the items in this window, except the first three and the **Key Signature** and **Time Signature**, affect only the track that is currently displayed. If the full score is being displayed, then changing any parameter will change that parameter for every track. The **Clef**,



QuickScore

Depending on the contents of your song, the initial output from QuickScore may be just what you are looking for. However, it's more likely that at least a few areas of the transcribed music won't look just the way you'd like them to. For this reason, QuickScore has several menu items that let you massage the notated music slightly. In the next section, we'll look briefly at all of the items in QuickScore's menus, and then see how they are used to transfer your song to paper.

QuickScore's Menus

QuickScore's three menus contain several items for changing the appearance of your music, for viewing different sections, for playing the music you're looking at, and for printing the music.

Save Display

This item is used to save the contents of QuickScore's **Display...** edit window, which is described later in this section. The display file contains all of the information that determines how your song will look when it is printed. The file is saved with a .DIS extension, using the same file name as the last .CUB file saved in Tiger Cub. QuickScore loads a new .DIS file whenever it sees that the file name used in Tiger Cub has changed.

using from the list that appears, then left click on **OK***. Next, pull down the **File** menu, and left click on **Print File**. QuickScore will start to print your music on your printer. This may take a few minutes, due to the high quality of QuickScore's output, but when it's done, we think you'll agree that the results are worth the wait!

Alone with Tiger Cub

From here on out, you're on your own. We couldn't cover everything there is to know about Tiger Cub in this tutorial, but hopefully, you should now be familiar enough with the program to find your way around from here. Our suggestion: just play with the program, and as you come across features that you find intriguing (or puzzling), use this manual's index to find out more about the subject. And do keep an eye on the time—Tiger Cub can be so addicting that you may find yourself staying up well past your usual bedtime. Have fun!

* If you have an Atari Laser printer, you must run an additional program before running Tiger Cub, so you won't be able to print right now. See Chapter 8 for more details.

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Scoring with QuickScore

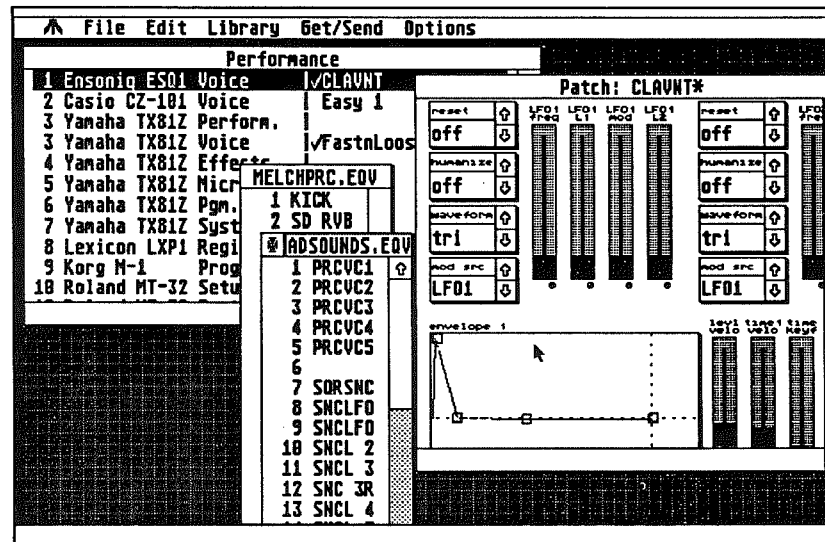
QuickScore is an MPE program that is designed to create traditional musical representations of tracks recorded in Tiger Cub. It is actually a simplified version of the Copyist, our highly regarded professional scoring program. With QuickScore, you will be able to

- * View your music on the ST's monitor in standard musical notation.
- * Print complete scores (or single tracks) of the songs you've recorded, for other musicians to play.

Starting QuickScore

QuickScore is loaded like any other MPE module, as described earlier in this chapter. The program and its .INF file are located on the QuickScore disk provided with Tiger Cub. After inserting this disk in drive A, pull down the **MPE** menu, then left click on **New....** When the file selector appears, select the file QUICKSCR.INF, and the MPE will load and execute QuickScore.

When you enter QuickScore, it will automatically start transcribing the music that is recorded in Tiger Cub. The first time you enter the program, it will transcribe everything using its default display settings. (You'll learn how to change the display settings a little later in this chapter.) The mouse cursor will disappear for a little while as QuickScore transcribes the music, after which the screen will look something like this:

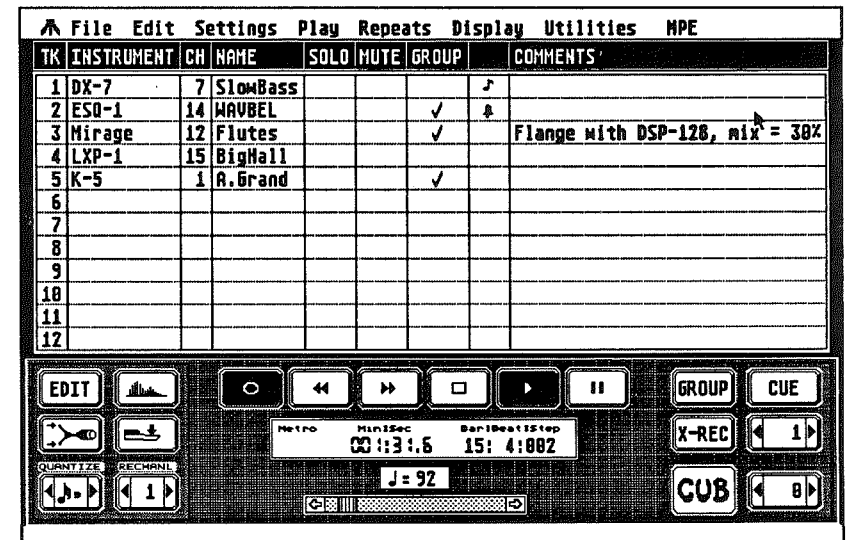


XOR in the MPE

MPE programs are available for just about any application you can imagine. The Caged Artist series of synthesizer and effects editors currently supports over 35 different instruments (not counting rack versions) with dedicated editor/librarians, and XOR, our universal editor/librarian, can be used with any instrument you own. The Copyist provides complete transcription and score editing capabilities, along with professional quality laser and PostScript output. And for those who want to explore computer music at its most intimate level, we offer T-BASIC, a full-featured, high speed variant of the BASIC programming language, that provides direct access to all of the important sequence data storage areas and play routines!

The Tape Recorder Screen

Tiger Cub's tape recorder screen is a software simulation of a twelve track tape recorder. It provides a fast and easy way for you to record and play music. Many of its controls are very similar to the controls on an ordinary tape deck, which makes it easy to use if you're new to sequencing, yet it also contains several controls that are found only in sequencers.



The Tape Recorder Screen

The tape recorder screen is divided into two distinct areas. In the upper half of the screen, the *track lines* contain information on the contents of each track, as well as a set of switches that affect each track individually. The bottom of the screen, called the *control panel*, contains controls that affect the overall operation of the sequencer.

In this chapter, we'll first look at the details of each of the items on the tape recorder screen, then we'll discuss the way they all work together to let you record and play music.

The Control Panel

The buttons and sliders in the control panel act as a set of master controls, that influence the operation of all twelve sequencer tracks.

The six buttons in the upper middle part of the control panel are exact duplicates of the transport controls of a tape deck. Below them are a set of counters that display the current playback position of the sequencer. Beneath these are a slider and display for the current tempo. To the left are several buttons for controlling sequencer options, and to the right are buttons for setting a cue loop and for grouping or erasing tracks. Each button is described in detail below.



This button turns recording on and off. When the button is on, playing on your MIDI keyboard will automatically start the sequencer and begin recording on the current record track.

The <F2> key does the same thing.



This button rewinds the sequencer. The sequencer will rewind as long as the mouse button is depressed. Its function is duplicated by the <Numeric -> key.



This button fast-forwards the sequencer. If the sequencer is playing when you left click on this button, it will continue to play (at a very high tempo) while the sequencer fast-forwards.

Like the rewind button, the fast-forward button is a momentary switch--the sequencer only fast-forwards as long as the mouse button is pressed. The <Numeric +> key does the same thing.



This button stops playback and/or recording. The first time you left click on this button, it will become highlighted, and the sequencer's play counter will freeze at its current position. The second time you left click it, the sequencer's play counter will be reset to the beginning of the song (or to the beginning of the cue loop, if one is set). The <Space bar> will stop the sequencer, and also resets it to the beginning, while the <Enter> key exactly duplicates the Stop button.



This button starts the sequencer. Play begins from the position shown in the counters immediately below these buttons. The <Space bar> and right mouse button will also start the sequencer.



This button pauses the sequencer. Left clicking on it a second time will restart playback and/or recording. The <Esc> key does the same thing.

Kbytes), CUB.INF should allocate (2*(30+4)), or 68, Kbytes. If this value is too small, MPE programs may have problems loading resource files, or it may be impossible to load programs after deleting others. The manual for each MPE application will discuss that program's special requirements, if any.

The CUB.INF file will be ignored by Tiger Cub (thereby freeing up that extra resource memory for sequencing) if you hold down a <Shift> key when booting the sequencer. You should only do this if you plan to run only non-GEM MPE modules, or none at all. If you never use MPE programs, you can permanently free up the space reserved by CUB.INF by renaming it to CUB.IN.

Using MPE Programs

The details of each MPE module's interaction with Tiger Cub depend on its function. Some make little use of the sequencer, while others are thoroughly enmeshed in it. Some programs, in particular Fingers and Tunesmith, are designed to make use of certain features in the KCS that are not included in Tiger Cub, and won't be much use in this version of the MPE. Some programs may have a way for you to play songs, ranges or cues without leaving the MPE module. In the Caged Artist editors, setting the mouse play feature to **range** or **cue** will cause the right mouse to play the current horizontal range or the cue loop if one is selected, or the entire song if not. Setting it to **sequence** will play the entire song.

Deleting MPE Modules

The most recently loaded MPE module can be removed from the ST's memory by left clicking on **Delete** in the MPE menu. This frees up the memory used by the program and returns it to the sequencer. It also deletes any data used by the MPE program, so be sure to save your work in the MPE program before deleting it.

Note that, since MPE programs must be deleted in the opposite order from which they were loaded, you may want to do a little planning if you plan on running several MPE modules. The programs that you will be using throughout your session should always be loaded first, even if you won't be using them immediately, and you should save the programs that are only used occasionally for last. Of course, you could always delete the first program loaded by removing all of the programs, deleting the first, and then reloading the others, but this is no fun at all, and is best avoided.

Memory and the MPE

Before you become all excited about running nine programs simultaneously on your stock 1040 ST, we must point out that the number of programs you can run in the MPE will depend, of course, on the amount of memory your system has, as well as the presence of desk accessories and/or memory resident programs, and the sizes of the MPE modules themselves.

Generally speaking, a 1040 can run one or two MPE modules, and a Mega 4 can handle a full complement of eight programs, assuming they are not all memory hogs. In order to run the Copyist (our high-end notation program) in the MPE, two megs of RAM are recommended.

QuickScore, the Copyist and other MPE modules that use GEM menus (such as XOR) also require the use of a file called CUB.INF. This file, which Tiger Cub reads when it boots, tells the sequencer to reserve additional memory for use with MPE resource files, and contains a simple ASCII representation of the number of Kbytes to reserve.

The file CUB.INF on the Tiger Cub program disk will reserve enough memory to run QuickScore or most other MPE programs. The value in CUB.INF can also be changed using any text editor or word processor, in order to make room for additional (or larger) MPE programs. As a rule of thumb, CUB.INF should contain a number that is twice the number of Kbytes contained in the resource file for each MPE module you intend to run. (This can be determined by left clicking on the resource file icon, then selecting **Show Info...** from the Desktop File menu.) For example, to run the Copyist (.RSC file size = 30 Kbytes) along with the M1 Editor (4



This display allows you to keep track of the sequencer's playback. The metronome

shows two musical notes on most beats, and four notes on the downbeat (first beat) of each measure. The **Bar:Beat:Step** display shows the current "play position" of the sequencer, in measures, beats, and steps. (Steps are a measure of the sequencer's maximum internal timing resolution. See page 10 for more on steps, and their relationship to beats.) The **Min:Sec** display shows the amount of time elapsed since the beginning of the song.



This slider allows you to set the sequencer's playback tempo. The tempo is displayed in BPM (beats per minute) above the slider. The

tempo can be changed either by dragging the slider, or by left clicking on the arrows at either end of the slider. Left clicking to the left or right of the slider handle changes the tempo by ten BPM. The tempo can also be adjusted in increments of one BPM with the <, > and <.> (<Comma> and <Period>) keys. The range of the tempo slider is determined by the **Tempo Edit Range** settings in the **Environment...** window.

Because Tiger Cub allows you to include tempo changes in the conductor track, this slider may move around on its own when a song is playing.



This button takes you to Tiger Cub's graphic editing screen. It is identical to the **Graphic Editing** option in the **Play** menu, and is duplicated by <Control-T>.



This button activates MIDI merging, which allows you to play your master keyboard through Tiger Cub and into any slave modules you may be using. MIDI merging is explained in detail on page 65.

QUANTIZE



This button toggles real-time quantization. If this button is highlighted, all recorded notes and controllers will be quantized (or auto-corrected, if you prefer) to fall on the rhythmic value displayed in the button. The quantization value may be changed by left clicking on the arrows to either side of the button itself.

Note that, because real-time quantization affects controllers as well as notes, we recommend that you leave this switch turned off when recording parts that include controller data, and use the **Quantize Selected** option (explained on page 49) to quantize your parts after they are recorded.



This button allows you to enable or disable the recording of continuous controllers, pitch bend, and program changes. It should normally be left on, unless you have a specific reason for turning it off.



This button allows you to enable or disable the recording of aftertouch (pressure) data. Not all keyboards send aftertouch information, but those that do often send huge amounts of it during normal playing, even when it is not being used. For this reason, we suggest that you leave this switch turned off, unless you are recording a part using a sound that does make use of aftertouch.



This button turns on rechannelization. Rechannelization is very similar to MIDI merging, except that any MIDI data that is received is converted to a new channel before it is recorded and/or merged. This is especially handy if you have a master controller that controls several slave modules, but which only transmits on a single channel. Rechannelization can also be turned on and off with the <Backspace> key, and the rechannelization channel can be changed with the <<> and <>> (<Shift-Comma> and <Shift-Period>) keys. See page 65 for more on rechannelization.



The **GROUP** button is used to activate Tiger Cub's track grouping feature. This lets you listen to several tracks as a group, while ignoring the others. The group feature is explained in detail on page 25.



This button is used to erase the track being recorded. Use it when you make a mistake during recording, and want to start over. The current recording will be erased, and the sequencer will be reset to the beginning of the song, or the first cue point, if a cue loop is set. This button is duplicated by the <Undo> key.

If you want to erase the most recently recorded complete track, use the **Erase Last Track** menu item, described on page 38.



These three buttons are used to control Tiger Cub's cue loop. Essentially, what this lets you do is to play a segment of the song repeatedly. This is handy if you want to record new parts in one section of the song, without listening to the whole thing each time you record, or if you want to listen to one section while fiddling with your synthesizers. Left clicking on the **CUE** button will immediately start all tracks at the beginning of the cue loop, or left clicking on the play button when **CUE** is highlighted does the same thing. The beginning and end of the cue loop are displayed, in

Chapter 10

The Multi Program Environment and QuickScore

The **MPE** menu is used to access Dr. T's exclusive Multi Program Environment. The MPE is a special feature of Dr. T's Atari ST sequencers that lets you load up to eight other MPE programs into memory at once. These programs allow you to extend Tiger Cub's capabilities to those of a dedicated music workstation, combining sequencing, sound design and management, scoring, algorithmic composition, and many other functions in one integrated system.

The Tiger Cub package includes our newest MPE module: QuickScore, a program for converting sequence data to standard musical notation and then printing the resulting score on any of several printer types. In this chapter, we'll first cover the basics of using the MPE, and then discuss QuickScore.

Loading MPE Programs

As mentioned above, the MPE can be accessed through the **MPE** menu. Left clicking on **New...** will load and run a new MPE program. Each MPE program has its own special "info" file, with a .INF extension, that tells the MPE everything it needs to know about the program. After you left click on **New...**, a GEM file selection window will appear, where you must select a .INF file for the program to be loaded. If there is enough memory available to load the new program, it will be loaded and run. Note that only programs designed *specifically* for the MPE will have valid .INF files. The MPE will not load the files DESKTOP.INF or CUB.INF!

After the MPE program is loaded, a three letter abbreviation for it (**QSc** for QuickScore, for example) will appear in the next free slot in the **MPE** menu. Left clicking here will take you back to the MPE program. The MPE program itself will have some option, usually labeled **To KCS** or **KCS Edit**, for returning to Tiger Cub. ("KCS" stands for Keyboard Controlled Sequencer, the granddaddy of Dr. T's sequencer family.)

MPE programs may be loaded from any directory on a hard drive, though you will have to insert the original disk when you first load the program.

Again, see your manuals (especially the MIDI implementation charts) for more details.

The sixteen channel buttons tell Tiger which channel(s) this instrument can receive on. Some instruments can only receive on one channel, while multi-timbral instruments can receive on several. Sharp-witted readers may realize that Tiger Cub will let you assign more than one instrument to the same channel; in this case, the program only uses the program names from the lower-numbered instrument.

The field labeled **Bank:** cannot be edited; it simply displays the name of the bank that was last loaded or saved with the **LOAD BANK** and **SAVE BANK** buttons. The instrument bank is also saved and loaded with each .CUB file, as well as the startup file (DEFAULT.CST).

We have included several instrument bank files for popular synthesizers on the Tiger Cub disk, in a folder named INST. We are also in the process of developing an MPE program that will be able to extract the names of the sounds from any instrument that supports MIDI system exclusive data dumps. If a file named INST.PRG is included on your disk, see the README file for instructions.

Select Program...

This option lets you select the initial program for a track from the list created in the **Instruments...** window. It is only available on the graphic editing screen, and then only if an instrument has been defined for the displayed track's channel. It is also unavailable if the track's PG window is open. The **Name Track from Program** button does just what it says--if the button is highlighted, then the track's name will be set to the program's name after you left click on **OK**. The **MORE...** button provides access to the second set of 64 sounds.

This window's **Audition** button lets you hear the program you've selected. Left clicking here will send the program change that you've selected to your system, and will play the song from the beginning, if it's not playing already. (The song stops when you leave the window.)

measures, in the two lower boxes. If the end point is set to 0, the sequencer will play to the end of the song. The <Tab> key duplicates the function of the **CUE** button.

The Track Lines

The twelve lines in the upper part of the screen consist of several fields that contain information and buttons related to each individual track. These items are discussed below.

The track lines also provide a quick and easy way to bring up a graphic display of any track. If you hold down either <Shift> key when left clicking on any existing track, Tiger Cub will take you directly to the graphic editing display, with that track selected and ready for editing.

TK CH

These two fields hold the track number (1--12), and the channel of the first MIDI event that appears on the track. Note that, in almost all cases, the channel of the first event on the track is the same as the channel of every event on the track. However, since Tiger Cub can simultaneously record multiple MIDI channels on a single track (which may happen if you are using a split keyboard, a guitar controller, or certain other controller devices), and because multi-channel tracks can be created by the **Merge Tracks...** menu option, you may want to keep this little fact in mind. **For 95% of all applications, the channel listed here will be the channel of every event on the track.** These two fields cannot be edited.

INSTRUMENT NAME COMMENTS

These three fields are editable text fields where you may enter information about the track. After you left click in any of these fields, a cursor will appear on the line, and you may type in text. After entering text, press <Return> to return to normal operation. You cannot use the mouse in the menu or control panel while entering text.

In many ways these three fields are identical, in that you can enter whatever you wish in all three. The **INSTRUMENTS** and **NAME** fields, however, have a few hidden features, if you have created an instrument bank or drum kit with the **Instruments...** or **Drumkit...** menu options (as described on pages 69 and 67). First of all, if an instrument name has been assigned to the channel on which you are recording, the name of the instrument (e.g. **CZ 101**) will appear in the **INSTRUMENTS** field as soon as you start to record. Second, if you use the **Select Program...**

menu option (described on page 70), you can automatically name the track with the program name.

SOLO MUTE GROUP

These three buttons are used to temporarily silence, or mute, one or more tracks, so that you can listen to the remaining tracks without distraction. **SOLO** mutes all but the selected track, and **MUTE** mutes only the selected track. **GROUP** is a more complex type of muting that mutes an entire group of selected tracks, in combination with the **GROUP** button in the control panel. These features are fully explained later in this chapter, on page 25.

Recording on the Tape Recorder Screen

Recording on the tape recording screen is very similar to recording on a physical tape recorder: first you turn on the record button, then you start the tape deck, then you start to play.

Actually, while sequence recording in Tiger Cub is very similar to this, there are a few additional wrinkles involved. Most important, in Tiger Cub you can only record one track at a time. The program always records on the lowest numbered empty track--the track in which the blinking label ***RECORD*** appears.

Recording begins as soon as you play something on your master keyboard, or when you move a controller, if controller recording is enabled. If you don't want to start recording at the beginning of the track, then left click on the Play button (or press the <Space bar>), and then begin recording at the proper point in the song.

If you'd like to hear a few measures of the metronome before you start to record, Tiger Cub lets you set a count-in, during which the sequencer does nothing but sound the metronome at the song's initial tempo. The count-in is explained on page 64.

When you've reached the end of the song, Tiger Cub will loop back to the beginning if either the **Play Loop** or **Auto Record** switch, in the **Play** menu, is turned on. If **Auto Record** is turned on, then it will continue to record on the next available track when it loops.

Remember that, in addition to recording tracks that are the full length of the song, you can record tracks in short sections using the **CUE** button, as explained on page 22. This is especially handy if you are recording a

Instruments...

The **Instruments...** edit window, shown below, is used to create a list of the sounds that are stored in up to six MIDI instruments.

EDIT INSTRUMENT Instrument Number: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

Instrument Name: ESQ-1 Bank: Untitled

Chn: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16

0	BIGSYN	13	NEVBRS	26	PLKMTL	39	CHORUS	52	UNAMIT
1	PIANO1	14	SYNBAS	27	SHAKER	40	SFBASS	53	STRORC
2	ORGAN1	15	SHAPSI	28	DUNNO	41	OLDER	54	GRZREED
3	3TRUMS	16	BRASR	29	HARP 2	42	JUNKER	55	FUZORG
4	VELBAS	17	SAX 1	30	MINI M	43	ENGINE	56	LOWORG
5	SLDRUM	18	MOODS	31	BOTTL	44	VIBES	57	BLIP
6	SLOSTR	19	HI-RES	32	VIOLIN	45	FLEUT	58	POP
7	MIXED	20	HAPPY1	33	SPCCLV	46	6ZPANQ	59	FART
8	SINPAD	21	PIANO2	34	GLOCKN	47	DXLIKE	60	MEGASH
9	WAVBEL	22	ECHO 1	35	VIOLA	48	ROBASS	61	BIGBIG
10	4XFADE	23	ICYORG	36	CLARNT	49	ETC	62	ANYMOR
11	BL PNO	24	ANABRS	37	PIPEOR	50	CYMBAL	63	WOMORE
12	CLAV 1	25	EMILES	38	VDREAM	51	CLICHE		

The Instruments Window

First, let's define some of the terms used here. A *bank* is a file created by Tiger Cub, that contains the data for six instruments. An *instrument* is simply a list of 128 program names, as well as the name of the physical instrument itself, and a list of the channels that instrument receives on. This window lets you edit the information for any one of the six instruments (which are selected by left clicking on the numbers 1 to 6 at the top of the window).

The window shows the program names for 64 of your instrument's programs at once. The remaining 64 can be accessed through the **MORE...** button. Two very important facts must be kept in mind here. First, the numbers given here are the MIDI program change numbers that correspond to the programs, NOT the internal program numbers. On many instruments these are identical, but on others (especially those that contain more than 128 sounds), the instrument may have something called a patch map (or patch table) to "map" the internal sounds to the 128 MIDI programs. Check your instrument's documentation. The second consideration is that some companies do not number their programs from 0 to 127. Some number their programs from 1 to 128, which is easy to convert to the system we use, but others use even stranger systems.

2: 2:182
Tomtom 1

In MIDI drum machines, each drum sound is assigned to one or more notes on the MIDI keyboard. Tiger Cub's *drum kit* is a list of names that are associated with various note numbers. When a drum kit has been created and a channel assigned to it, Tiger Cub will display the names listed here in place of the pitch values in the mouse position indicator when editing in a track that is set to that channel.

One very important thing to bear in mind here is that, like program numbers, the names of MIDI note numbers are not standardized, and the names we use do NOT match those used by most drum machine makers. Specifically, the note we call C2 (MIDI note 36, the low note on a five octave keyboard) is called C1 on most drum machines. If you accidentally enter the names using the wrong system, the **CHANGE KEYBOARD RANGE** button (described below) can solve the problem.

CHANGE KEYBOARD RANGE lets you shift the range of notes that will be used for the drum names. After left clicking here, a window will ask for the new base key value. The names you have entered will be shifted so that the name for the lowest note in the table lines up with the note you specify. Most drum machines use our C2 as their lowest note.

LOAD KIT and **SAVE KIT** load and save the current drum kit in a disk file. This is handy if you have more than one drum machine (you lucky devil), or if your drum machine allows you to create different setups (like the Alesis HR-16). The drum kit is also saved with each .CUB file, and with the startup file. The field labeled **Kit:** shows the name of the drum kit that was last loaded or saved.

We have included several drum kit files for popular drum machines on the Tiger Cub disk, in a folder named DRMKITS.

NOTE

QuickScore 1.0 uses a fixed drum assignment scheme when transcribing drum parts. If you intend to print out drum parts with QuickScore, you should make sure that the drum assignments in your machine match those in the file STANDARD.KIT. (Most drum machines that do not allow you to re-assign drum notes will already match these assignments.) The drum note assignments used by QuickScore are listed in Appendix 2.

really long piece of music. If you record short cues on the same instrument on several different tracks, you can always merge these tracks with the **Track Merge...** item in the **Utilities** menu later on, if you start to run out of tracks.

Muting Tracks with SOLO, MUTE, and GROUP

The sections of the track lines labeled **SOLO**, **MUTE**, and **GROUP** are buttons that are used to silence (mute) one or more tracks during playback and recording. Left clicking in any of these boxes activates or deactivates that feature for that track, and displays a symbol in the box--an arrow for **SOLO**, an asterisk for **MUTE**, or a check mark for **GROUP**.

When a track is soloed, only that track will be played over MIDI. If a track is muted, it will *not* be played. If the **GROUP** switch is on for any given track, then that track will be made part of the *group*. If the **GROUP** button in the control panel is turned on, then only those tracks that are part of the group will be played; otherwise, tracks in the group are treated like any other tracks. This allows you to momentarily listen to a group of instruments (for instance, just the drums and bass), by left clicking on the **GROUP** button in the control panel, and then instantly switch back to the full orchestra by left clicking on the **GROUP** button again.

The **SOLO** button always takes precedence over the other two, and the **GROUP** button takes precedence over **MUTE**. If a track is soloed, it will always be the only one played, regardless of the other switch settings; if a track is muted, it won't be heard, unless it is also soloed or part of an active group.

Chapter 9

The Instrument and Drum Kit Lists

One of Tiger Cub's neatest features is its ability to keep track of the names of the programs in your instruments and the sounds in your drum machine, so you don't have to be continually dealing with program numbers and MIDI note numbers. This is handled by the **Drumkit...**, **Instruments...**, and **Select Programs...** options in the **Utilities** menu.

Drumkit... and **Instruments...** are used to create lists of the sounds stored in your MIDI system. Once you have created these lists, Tiger Cub will automatically use these names at certain points in the program. For example, when recording on the tape recorder screen, Tiger Cub will insert the name of the instrument you're recording on in the **INSTRUMENT** section of the track line, if it has been told what it needs to know about that instrument.

Drumkit...

This option lets Tiger Cub know what sounds are in your drum machine. The following window will appear when you select **Drumkit...**

EDIT DRUMKIT

Kit: Standard

Instrument Name: Drum Box_ Channel: 16

C 0 Kick _	CM1	Crash_	D 2	_____	DM3	_____	E 4	_____
CM0 Rim_	D 1	MdTom2	DM2	_____	E 3	_____	F 4	_____
D 0 Snare1	DM1	Ride_	E 2	_____	F 3	_____	FM4	_____
DM0 Claps_	E 1	HiTom1	F 2	_____	FM3	_____	G 4	_____
E 0 Snare2	F 1	HiTom2	FM2	_____	G 3	_____	GM4	_____
F 0 FlTom1	FM1	Tamb_	G 2	_____	GM3	_____	A 4	_____
FM0 CHiHat	G 1	_____	GM2	_____	A 3	_____	AM4	_____
G 0 FlTom2	GM1	Combel	A 2	_____	AM3	_____	B 4	_____
GM0 CHiHat	A 1	_____	AM2	_____	B 3	_____	C 5	_____
A 0 LoTom1	AM1	Shake	B 2	_____	C 4	_____		
AM0 OHiHat	B 1	_____	C 3	_____	CM4	_____		
B 0 LoTom2	C 2	_____	CM3	_____	D 4	_____		
C 1 MdTom1	CM2	_____	D 3	_____	DM4	_____		

CHANGE KEYBOARD RANGE

OK

CANCEL

LOAD KIT

SAVE KIT

The Drum Kit Window

This page intentionally left blank.

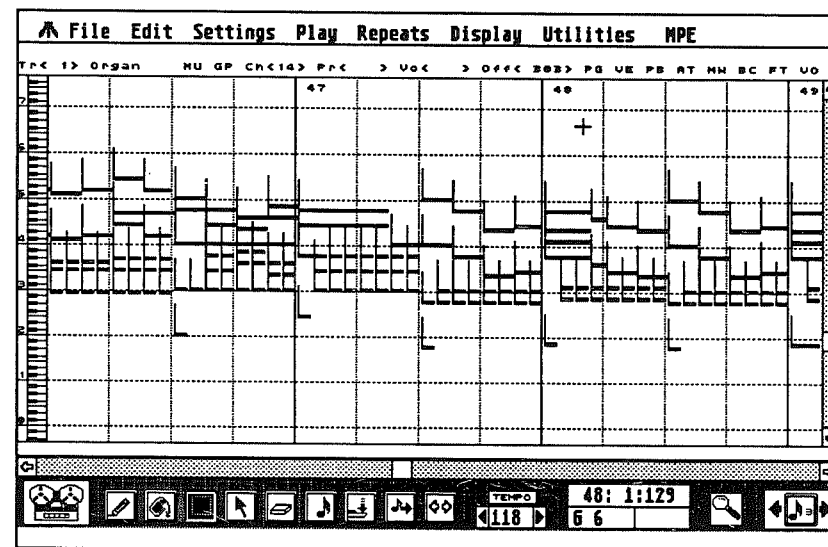
controller), you should also turn local control off at the master controller when using either type of merging.

These controls are also found on the tape recorder screen.

Chapter 5

The Graphic Editing Display

Tiger Cub's graphic editing display occupies the entire screen, except for the menu bar at the top of the screen, and the controls at the bottom.



The Graphic Editing Display

The graphic editing screen consists of a *track window*, which displays the note data for a single track, along with an optional controller window. The bottom of the screen contains the *master controls*, which affect or display data for things like mouse function and position, and display magnification.

In this chapter, we'll look at each of the elements of the graphic editing display in detail, as well as the **Display** menu, which contains several global display controls.

The Master Controls

The bottom of the graphic editing display contains a collection of icons and readouts. The icons are used for editing, magnification, and other

global functions, and the readouts show the tempo and the positions of the program's cursors.



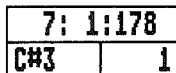
The *Tape Recorder* icon is used to return to Tiger Cub's tape recorder screen. It is identical to the **Tape Recorder** option in the **Play** menu, and is duplicated by <Control-T>.



The nine *Left Mouse* icons determine the function of the left mouse button in the graphic editing display, and are explained in detail in Chapter 6.



The current tempo is displayed in this icon. The arrows on either side of the display are buttons used to change the current tempo. Left clicking on either will change the tempo by one BPM, or right clicking will change it by about 2.5%. The <, > and <., > keys can also be used to adjust tempo up or down in increments of one BPM.



The location of the mouse is continuously displayed by the *mouse position indicator*. The top portion of the mouse position indicator shows the horizontal position of the mouse, in measures, beats, and steps, and the lower half is split between a display of the mouse's vertical position (expressed as a pitch, tempo, or controller value, depending on the window under the mouse) and the current play measure. The vertical position indicator will also display certain quantities that depend on the edit operation being performed, such as note duration or velocity. If you have defined a drum kit for the channel of the current track, as explained on page 67, the vertical position indicator will show the name of the drum corresponding to the cursor's pitch, rather than a note name.



The *Quantize* icon activates horizontal (time) quantization, or auto-correction, for all note drawing and recording operations. The value used for quantization is shown in the icon, and it can be adjusted by left clicking on the arrows on either side.



The *Zoom* icon is used to magnify or shrink the time scale for the track display. Left clicking on the icon moves in on the display (enlarges detail), and right clicks move back (shows more time). Holding down either <Shift> key while clicking on this icon will cause the magnification to change by two steps, which is handy if you're going from a close-up to a full song view, or vice versa. The maximum magnification that is possible will depend on the clock resolution that you are using.

will be played each time it is pasted. When moving a note or phrase with **Play when Selecting** active, the note or phrase will be played each time the pitch changes, which can result in some unusual cascading effects.

Instant Replay

If **Instant Replay** is on, pressing the key or mouse button for any partial play option on the graphic editing screen while Tiger Cub is playing will restart that chunk of music. Otherwise, pressing any of these keys will stop playback. The <Space bar> (play all) always stops the sequencer, regardless of the setting of this switch.

Send Programs on Loop

When this switch is on, Tiger Cub will search for the last program change (PG) message before the beginning of the section being played, and send that each time it loops. This is useful if you are looping a long segment of music that covers several different programs, however, you may want to turn it off at times, especially if any of your instruments glitch when program changes are received, or if you are experimenting with different programs while looping a phrase.

Ignore Tempo Events

When this switch is on, tempo events in the conductor track will have no effect. It is equivalent to muting the conductor track. This is handy in certain editing situations, or if you want to experiment with different tempos using the tempo indicator on the graphic editing screen, or the tempo slider on the tape recorder screen.

MIDI Merge Rechannelize

When **MIDI Merge** is activated, Tiger Cub will re-transmit any MIDI data that it receives at the ST's MIDI input. This is primarily useful if you are using a master keyboard, guitar controller, or other device to record parts for additional, keyboardless "tone modules". **Rechannelize** is the same as **MIDI Merge**, except that all data is rechannelized to the channel displayed to the right of the button as it is received. For example, if your MIDI controller is transmitting information on MIDI channel 1, and you'd like to record a part on a tone module or slave keyboard that is set to channel 3, select **Rechannelize** and set the rechannelize channel to 3. When **Rechannelize** is turned on, the **MIDI Merge** switch is ignored.

As a general rule, you should use **MIDI Merge** only when your master controller lets you change its MIDI output channel independently of its receive channel; otherwise, **Rechannelize** is probably the better choice. If your master controller also receives data from your sequencer (that is, if it is a complete synthesizer, rather than a silent keyboard, wind, or guitar

fine for most purposes, but if you see the messages "Too much to select" or "Too many notes to copy", you may want to increase the size of these buffers.

Steps/Beat

Steps/Metronome

Steps/Beat sets the program's fundamental clock resolution. The standard value for MIDI is 24 steps/beat; however, professionals rarely use anything below 96, and 240 is a more typical value. The **Steps/Beat** setting also affects the maximum zoom magnification. **Steps/Metronome** determines how often the metronome will sound, and should normally be the same as **Steps/Beat**.

NOTE

Note that Tiger Cub does NOT recompute existing event times when **Steps/Beat** is changed. This means that you should normally only change this at the beginning of a session, before you start recording a piece; otherwise, your music won't be in time with the metronome and bar lines.

Count-in

The **Count-in** setting lets you specify a number of beats that will pass before Tiger Cub begins to play after left clicking the Play button. The count-in only occurs when recording on the tape recorder screen. MIDI clock signals will be sent during the count-in, so you may not want to use the count-in if you're synchronizing a drum machine or other sequencer to Tiger Cub.

MIDI Slow

This switch is a fix for a problem found in some early Yamaha instruments. It adds a delay after each MIDI message. Almost all of the time (99.9% is not an overstatement), this should be set to 0, but if you have inexplicable problems with stuck notes, mangled program changes, or other MIDI gremlins, you might try adjusting this and see what happens.

MIDI Clock

The **MIDI Clock** switch tells Tiger Cub to send MIDI clocks and start, stop, and song pointer messages. You should only turn this on if you are actually synchronizing a drum machine or some other sequencer to Tiger Cub, since it only clutters up the MIDI data stream if it's not being used. MIDI clocks are always sent at the standard rate of 24 clocks/beat.

Play when Selecting

When this switch is on, notes will be played over MIDI as they are selected, drawn, or pasted. If phrases are being pasted, the entire phrase

Scrolling Through the Song

At the bottom of the display, and just above the icons that make up the master controls, is a horizontal bar bracketed by two arrows. This bar is called the *horizontal scroll bar*, and is used to scroll through the piece of music. When you grab the handle in the scroll bar, the measure, beat, and step that correspond to the handle position will be shown in the mouse position indicator, so you can precisely position the display anywhere in the score. Left clicking in the scroll bar to the right or left of the movable handle will move the display by half of the screen width. Left clicking on the arrow at either end of the scroll bar will shift the display by the time equivalent of four horizontal pixels.

The large empty area just above the scroll bar contains the *play position cursor*, which is a simple vertical line that shows the exact point in the music that is being played. When Tiger Cub is playing, the play position cursor moves along the time bar as the music on the screen is played.

The function keys <F1> through <F10> can also be used to scroll through the piece. <F1> and <F2> move back or ahead by half the screen amount, thereby duplicating a left click in the scroll bar. <F3> moves the display to the beginning of the piece. The remaining function keys (<F4> through <F10>) function as programmable locaters. Pressing <Shift> and one of these keys stores the current display position under that key, and pressing that key later causes the display to jump to that point.

The bar number is shown in the upper left corner of each measure in the top track in the display. If the magnification is low, only a portion of the bar numbers and bar lines are displayed.

The Track Window

The graphic editing display contains a single track window, which shows the note data for a single track, and consists of several sections. At the top of the track window is the *track information line*, which contains several global track controls. Along the left edge of the window is a keyboard, which displays the pitch range of the window and can also be used for entering notes in the track. The right edge of the track window contains a scroll bar for changing the displayed range of pitches, and the remainder of the area is the track window itself, where note data is displayed and edited.

In addition to a single track containing MIDI data, the conductor track may also be displayed. The conductor track is discussed later in this chapter.

Different tracks may be viewed in one of two ways. The easiest way to change to a new track display is to press <Insert> followed by a track number on the QWERTY keyboard *only*. For instance, to display track 5, type <Insert> <5>; to display track 12, type <Insert> <1> <2>, etc. (For track 1, you must type <Insert> <1> <Return>, for obvious reasons.) You can also step through the tracks by left clicking on the arrows that bracket the track number, as explained in the next section.

The Track Information Line

At the top of the track window is an area called the *track information line*, which has several "global" controls that operate on the track as a whole. The track information line is shown below.

```
Tr< 1> Bubbles MU GP Ch< 1> Pr< 2> Vo< 22> Off< 10> PG VE PB AT MW BC FT VO
```

Several parameters in the track information line are bracketed by arrow icons, which can be used to raise or lower the values of those parameters. Left clicking on an arrow changes its setting by one, and a right click changes it by four. If the mouse button is held down, then the setting will rapidly scroll through its values.

Track Number

The control at the far left of the track information line is used to select the track in the window. Left or right clicking on either arrow will make the display step to the next existing undisplayed track. The track name is also displayed; it may be edited in the **Utilities** menu, or on the tape recorder screen.

MU and GP (Mute and Group)

These two buttons are used to silence tracks. They are identical to the **MUTE** and **GROUP** buttons associated with each track on the tape recorder screen. When **MU** is selected, that track is muted. If **GP** is selected, that track is made part of the *group*, which is a group of tracks that can be played together, without playing any others. On the graphic editing screen, the group is only active when the **GP** button for the displayed track is highlighted. Changing the display to a track that is not part of the group, or turning the **GP** button off for the displayed track, will de-activate the group. <Shift> left clicking on the **GP** button will turn off the **GP** buttons for all other tracks, and therefore is equivalent to soloing the displayed track.

The group feature is explained in more detail on page 25.

Chapter 8

The Environment Window

The **Environment...** option in the **Utilities** menu, brings up Tiger Cub's Environment window. This window lets you change several parameters that affect the operation of Tiger Cub as a whole.

CHANGE WORKING ENVIRONMENT	
Events left after cleanup: 282388	
Select Buffer: <input type="text" value="648"/>	Paste Buffer: <input type="text" value="288"/>
Tempo Edit Range From <input type="text" value="60"/> BPM to <input type="text" value="180"/> BPM	
PLAY SETTINGS Steps/Beat: <input type="text" value="192"/> Steps/Metronome: <input type="text" value="192"/> Countin (beats): <input type="text" value="0"/> MIDI Slow: <input type="text" value="0"/> <input type="checkbox"/> Rechannelize <input type="text" value="1"/>	TOGGLE SWITCHES <input checked="" type="checkbox"/> MIDI Clock Out <input type="checkbox"/> MIDI Merge <input type="checkbox"/> Play when Selecting <input checked="" type="checkbox"/> Instant Replay <input type="checkbox"/> Send Programs on Loop <input type="checkbox"/> Ignore Tempo Changes
<input type="button" value="OK"/> <input type="button" value="CANCEL"/>	

The Environment Window

All of the settings in the Environment window are saved in the program's startup file (DEFAULT.CST), as well as with each .CUB file. The individual parameters are described in the rest of this chapter.

Tempo Edit Range

These two numbers allow you to change the range of the conductor track's tempo window and the tape recorder screen's tempo slider. Wide ranges are nice if you want to create drastic changes in tempo, while narrow ranges are good if you wish to add minute changes.

Select Buffer

Paste Buffer

These items allow you to determine how many events may be selected, and how many events may be copied to the paste buffer. Because these two buffers require a lot of memory for each event stored, we decided to let you adjust these buffer sizes as needed. The default values should be

If the two tracks are on different channels, Tiger Cub will issue a warning message before proceeding with the merge. If you do decide to merge two tracks that are on different channels, the resulting track will contain data on both channels--a condition which is not at all harmful, but which may make it difficult to edit the merged data.

Swap Tracks...

This option, which is only available from the tape recorder screen, allows you to swap the positions of two tracks. An edit window will allow you to specify the tracks to swap.

Ch (Channel)

This changes the MIDI channel of all events in the track. If the track contains data on more than one MIDI channel, the program will issue a warning before changing the channel.

Pr and Vo (Program and Volume)

These controls display and set the initial program change and volume events in the track. If no events of the appropriate type exist at the beginning of the track, the display will be empty, and left clicking on either arrow will insert an event at the beginning of the track.

The initial program and volume will not be displayed if there are other events of that type between the beginning of the track and the end of the display, since the initial value is irrelevant at such times. Note that, under some circumstances, these displays may not be updated immediately.

Off (Offset)

This shows the time of the first event in the track, in steps. Adjusting the offset is an easy way to shift an entire track relative to the others, for making minor changes in the feel of a part, or if you start to record a part (especially the first track in a song) a little later than you intended. The offset is not displayed if the track starts more than 9999 steps after the start of the piece.

PG, VE, PB, AT, MW, BC, FT, VO (Controller Window Buttons)

These buttons are used to add individual controller windows in the track window. Left clicking on any button opens a window for the appropriate controller type if none exists, or replaces an existing controller window with one of the appropriate type. The controller types are listed below:

PG:	Program change
VE:	Velocity
PB:	Pitch bend
AT:	Aftertouch
MW:	Mod wheel (CC 1)
BC:	Breath controller (CC 2)
FT:	Foot pedal (CC 4)
VO:	Volume (CC 7)

Continuous controllers not assigned to these buttons can be added to the display with the **Add Controller...** menu option, as explained later in this chapter. Controller windows are discussed in more detail later in this chapter.

The Track Scroll Bar

The *track scroll bar*, located along the right edge of the track window, is used to move the track window up or down in pitch. The vertical arrows at the top and bottom of the scroll bar shift the pitch of the window by a half-step. Left clicking above or below the handle in the scroll bar will move the window by an octave.

The Keyboard Icon



The keyboard displayed along the left edge of the track window serves to show the pitch range of the display, and to play notes with the mouse. Left or right clicking on any key will play that note over MIDI, using the current mouse velocity (set in the **Draw Attributes...** window). If Tiger Cub is playing, it is also possible to draw notes in a track by clicking on the keyboard icon. Note drawing is discussed in more detail in Chapter 6.

The Controller Windows

Continuous controllers, program changes, note velocities, and, in the conductor track, tempo events can all be assigned to, and edited in, their own special windows. Only one controller window may be displayed at any time. A controller window may be added to the display using the buttons in the track information line, as described on page 31, or using the **Add Controllers...** menu option. A controller window can be closed by left clicking on the close window button, just below the track scroll bar. The controller type is shown to the left of the window.

The area to the left of the controller window itself can be used to send and record controller messages, just as the keyboard icon can be used to enter and play notes. A single left or right click in this area, called the *controller strip*, will send a message for that controller through MIDI. Holding down the <Control> key while right clicking in the controller strip will display the last value of that controller prior to the beginning of the current screen in the pitch display portion of the mouse position indicator. (This is handy if you want to see where the last controller curve ended, without scrolling back to that point.)

If Tiger Cub is playing, then dragging the mouse in the controller strip lets you record or edit the controller in time with the music. Dragging the left mouse lets you edit existing controllers, and the right mouse button lets you record new controllers. This is especially useful for "conducting" Tiger Cub with the tempo (TM) window, or for recording crescendos and decrescendos. Recording with the controller strip is only possible when

Change Length...

This option is used to change the length of the song. This option cannot be undone.

Text...

This item provides access to a 16 line by 68 character text area, which can be used to hold comments about a piece. The mouse and the <Backspace> and cursor control keys can be used to move the cursor around the text area, and the <Clr/Home> key will erase the entire line that contains the cursor.

Environment...

This menu item brings up the environment edit window, which is described in Chapter 8.

Drumkit...

Instruments...

Select Program...

These three items are used in conjunction with Tiger Cub's editable instrument and drum kit lists. These features remove much of the drudgery that is involved in keeping track of what sounds are associated with which program numbers, and which drums are connected to what notes on the keyboard. They are fully described in Chapter 9.

Internal Sounds...

This menu option brings up an edit window, where you may "connect" the ST's internal sound chip to Tiger Cub's MIDI output. This chip provides three monophonic voices, each of which may be assigned to any MIDI channel, or turned off. Only one voice may be assigned to any given channel; if more than one voice is assigned to any channel, problems will occur. The voices are velocity sensitive, and will follow an external keyboard if one is connected to the ST's MIDI input.

The sounds used by this portion of the program were created using GIST, a sound editor from The Catalog (544 Second Street, San Francisco, CA 94107). You may load your own GIST sounds for any voice by left clicking on the **LOAD** buttons. The current sounds are saved in each .CUB file, and are also saved in the startup file.

Merge Tracks...

This option, which is only available from the tape recorder screen, lets you merge two tracks. An edit window will allow you to specify the two tracks to be merged. The merged tracks are placed in the lower of the two tracks. Unlike most other editing operations in Tiger Cub, merging two tracks cannot be undone.

We suggest you start with this switch off, then turn it on when you can no longer stand the normal menu operation.

Show Program Names

This switch changes the way program changes are displayed in the PG windows. When **Show Program Names** is on, the name of the program will be displayed to the right of the line that represents the program change, if a program name has been assigned to that program change, as described in the section on **Instruments...** later in this chapter. We recommend that you leave this switch off if you have a lot of closely spaced program changes in your music, since the names will print on top of one another in this case.

The Utilities Menu

This menu contains several items for performing "utility" operations on one or more tracks.

Track Name...

This item brings up an edit window that lets you enter an eight character name for the current track.

Backup

This item creates a backup copy of the current edit track. Note that Tiger Cub only keeps a single backup track at all times, which means (for example) that if you make a backup of track 12, and then backup track 2, your backup of track 12 will be lost.

Get Backup

This item retrieves the most recent backup track, and places it in the current track. This command can be undone with the <Undo> key, or simply by selecting **Get Backup** again.

Copy Track...

This item copies the current edit track to another track. An edit window will allow you to specify the destination track.

Delete Track...

This item is used to erase a specified track. **Delete Track...** cannot be undone, so use this option with care.

New Track...

This item is used to create a new track, and to specify its channel. The new track will also appear in the current display.

the play cursor is visible. (Editing existing controller events is always possible, no matter where the play cursor is.)

The VE (velocity) window duplicates the function of the velocity stems on each note in the track window itself. This window is provided to let you edit velocities using the same techniques used for editing controllers, as described on page 46. If two or more notes with different velocities start on precisely the same time step, only the highest velocity will be displayed, and editing that velocity will affect every note on that step.

The PG (program change) window is a little bit different than the others. Program changes are displayed as vertical lines with the actual value of the PG message (0-127) shown to the right. This will make the window awfully cluttered if you use a lot of closely spaced program changes, but hopefully, you aren't doing that. The program name will also be shown in the PG window if the **Show Program Names** switch in the **Settings** menu is turned on. Drawing with the right mouse in a PG window inserts single PG events, rather than continuous curves, since these are not too useful with program changes. Selected program changes can also be raised and lowered with the <Cursor Up> and <Cursor Down> keys. If only one program change event is selected, then any PG messages received over MIDI, on any channel, will change the value of that event. This allows you to edit PG events using your master controller's program selector.

The Conductor Track

The conductor track contains a window that displays tempo events, as well as a window for time signatures. The conductor track's window may be added to or removed from the display by left clicking on **Conductor Track** in the **Display** menu.

The TM (tempo) window acts exactly as the MIDI controller windows do. Tempo events can be drawn in real-time with the right mouse button, or edited with the left. Because tempo has a fairly wide range along with high resolution (tenths of a BPM), Tiger Cub allows you to set the range of this window with the **Tempo Edit Range** settings in the **Environment...** window.

The TS (time signature) window lets you set a time signature for any measure. For each time signature change, the time signature and the corresponding steps/measure value appear to the right of the bar line. Any time you left click in the TS window, the edit window shown on the following page will appear.

TIME SIGNATURE AT MEASURE:2

<input type="checkbox"/> 2/2	<input type="checkbox"/> 3/2	<input type="checkbox"/> 4/2	<input type="checkbox"/> 5/2	<input type="checkbox"/> 6/2	<input type="checkbox"/> 7/2	<input type="checkbox"/> 8/2	<input type="checkbox"/> 9/2
<input type="checkbox"/> 2/4	<input type="checkbox"/> 3/4	<input checked="" type="checkbox"/> 4/4	<input type="checkbox"/> 5/4	<input type="checkbox"/> 6/4	<input type="checkbox"/> 7/4	<input type="checkbox"/> 8/4	<input type="checkbox"/> 9/4
<input type="checkbox"/> 2/8	<input type="checkbox"/> 3/8	<input type="checkbox"/> 4/8	<input type="checkbox"/> 5/8	<input type="checkbox"/> 6/8	<input type="checkbox"/> 7/8	<input type="checkbox"/> 8/8	<input type="checkbox"/> 9/8
<input type="checkbox"/> 2/16	<input type="checkbox"/> 3/16	<input type="checkbox"/> 4/16	<input type="checkbox"/> 5/16	<input type="checkbox"/> 6/16	<input type="checkbox"/> 7/16	<input type="checkbox"/> 8/16	<input type="checkbox"/> 9/16

☐ User ☒ 768 steps/measure

Time Signature Edit Window

This window lets you set a time signature for the measure containing the mouse. Left click on any time signature value followed by **OK**, or left click on **User** to set that measure to whatever length you want, in steps.

Tiger Cub creates varying time signatures by inserting a special "time signature" event in the conductor track at the beginning of the selected measure. This remains in effect until the next time signature event occurs, so any time signature inserted in the conductor track affects the entire track from that point onward, unless there is already another time signature at some later measure. This means that, for example, if you want to insert a single measure of 3/4 time in a 4/4 song, you would first have to insert the 3/4 time signature at the appropriate point, and then insert a 4/4 time signature in the following measure. Any time a time signature event is inserted in the conductor track, all subsequent time signature events are aligned to fall at the start of a measure.

NOTE

QuickScore version 1.0 does not know how to deal with changes in time signature. If you plan to print out a score using QuickScore, you should avoid the use of multiple time signatures.

Playing from the Graphic Editing Screen

Tiger Cub's graphic editing screen gives you several options for playing the music displayed on the screen. There are several keys dedicated to playback on the computer keyboard, and the right mouse may be used to start the sequencer.

The following keys may be used to start playback from the graphic editing screen.

Load .ALL File...

Save .ALL File...

These options are used to move files between Tiger Cub and Dr. T's Keyboard Controlled Sequencer. A .ALL (all sequence) file contains everything in the KCS, including all 48 tracks and 128 sequences, as well as the text area and the environment settings. If you load a .ALL file with more than 13 tracks, the last 25 are ignored. (In the KCS, track 1 serves as the conductor track, track 2 is Tiger Cub's track 1, and all other track numbers are offset by one relative to Tiger Cub.) For .ALL files saved with KCS versions 1.6 or earlier, the environment will not be loaded with the .ALL file.

Save Startup

This saves all of Tiger Cub's settings, with the exception of sequence data, in a file called DEFAULT.CST. When the program boots, it will automatically load this file, so your favorite environment settings, drum kit, instrument bank, and other conditions will be in effect when you start a Tiger Cub session.

Quit

The last item in the **File** menu is used to leave Tiger Cub. Left clicking on **Quit** will terminate Tiger Cub. The program will allow you to save your work if you haven't done so already.

The Settings Menu

The **Settings** menu contains several options that affect the program's overall operation.

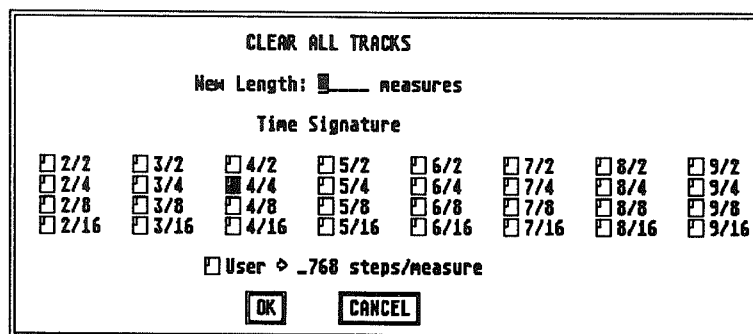
Draw Attributes...

This item brings up an edit window, which allows you to set the initial velocity and duration used for drawing with the mouse. If one or more notes are selected, you may copy the attributes from the first selected note by answering **Yes** to **Copy Selection**. Tiger Cub will also set the draw attributes from the first selected note if you <Shift> left click on the **Draw** icon.

The <Control-Z> key duplicates this menu item.

Pull Down Menus

When this switch is off, the menus act like the menus in every other ST program—that is, they drop down as soon as they are touched. This can become annoying after a while, since menus may drop down accidentally, and disturb both playback and your train of thought. If this switch is on, however, you'll need to left click on a menu in order to make it drop down.



Clear All Tracks Window

The buttons in the middle of the window let you select the initial time signature for the piece, and are much like those found in the time signature window (described on page 33). You must specify a new length; otherwise, Tiger Cub's memory will not be cleared when you left click on OK.

Append...

This command lets you tack an existing Tiger Cub file on to the end of the current song. This is handy if you've created a song in separate sections, and want to bring them all together, or if you wish to have two songs play sequentially in a performance.

When Tiger Cub appends a file to the current song, it searches the new file and counts the number of channels that will be required. If the resulting song won't fit in twelve tracks, the program will issue an error message instead of appending the file. You may be able to solve this problem by merging tracks in the existing song, especially if you have several tracks on the same channel, or if you don't mind having multi-channel tracks.

Load MIDI File...

This option is used to load files in the standard MIDI file format. Both format 0 (single sequence) and format 1 (all tracks) MIDI files can be loaded. In both cases, the file will be channelized and assigned to the appropriate Tiger Cub tracks as it is read from the disk. The current contents of all twelve tracks will be erased when either type of MIDI file is loaded.

Save MIDI File...

This saves the contents of all tracks in a format 1 MIDI file.

<Space bar>: Play from the beginning.

<Numeric 1> to <Numeric 9>: Play the selected number of measures, starting with the measure containing the mouse pointer.

<Numeric 0>: Play from the measure containing the mouse pointer to the end of the piece.

<Numeric *>: Play only the selected notes.

<Numeric ->: Play from the first selected event to the end.

<Numeric +>: Play from the left side of the screen to the end. If Tiger Cub is already playing, then continue to the end.

<Return>: Play horizontal range. If no range is selected, <Return> will play the measure containing the mouse.

<Enter>: Play the screen. <Enter> starts playback at the measure and step corresponding to the beginning of the screen, rather than on an exact measure line, as do most of the other keys. If the <Numeric +> key is pressed when the screen is playing, then Tiger Cub will continue to play to the end of the song, rather than looping or stopping at the end of the screen.

<Tab>: Repeat the last partial play option.

<Shift-Tab>: If already playing a portion of the piece, continue to the end of the song. Otherwise, repeat the last partial play and continue to the end.

The <Space bar> will stop the sequencer if it is playing. In addition, if the **Instant Replay** switch (described on page 65) is turned off, pressing any of the previously mentioned play keys except <Shift-Tab> will also stop the sequencer.

The <Esc> key puts Tiger Cub in Pause mode. Push <Esc> a second time to cancel Pause and restart playback.

The right mouse button will play from the location of the mouse to the end of the piece. Note that this starts playback from the exact location of the mouse pointer, as shown in the mouse position indicator, rather than at the beginning of the measure as most of the play keys do.

Due to MIDI's use of separate messages for turning notes on and off, it sometimes happens that a note-off message gets lost, and a note that was supposed to end will sustain forever. The <~> (<Shift '>) key performs a "panic button" function, by turning off all notes. If only one <Shift> key is held down when selecting the panic button, standard All

Notes Off messages will be sent on all 16 channels, along with zero pitch bend and sustain pedal off messages. If *both* <Shift> keys are held down, the panic button will send individual note off messages for all 128 notes on each channel. This is much slower, but will work with instruments that ignore or misinterpret the All Notes Off message, such as Roland and Ensoniq instruments.

The Play Menu

The **Play** menu contains several options. Most of the items in this menu affect Tiger Cub's graphic editing screen only, while some are only applicable to the tape recorder screen, and some apply to both.

Play Loop

When this switch is on, Tiger Cub will loop the section of music that is playing. The <Control-L> key also toggles the **Play Loop** switch. On the tape recorder screen, Tiger Cub will also loop when recording if **Auto Record** is turned on.

Auto Scroll

When this switch is on, the graphic editing display will track the piece of music as it plays. When the play position cursor reaches the right side of the screen, Tiger Cub redraws the display. This is a very useful feature, especially when you're looking for a particular event in a song. **Auto Scroll** has no effect on the tape recorder screen.

Auto Scroll can also be toggled with the <Control-A> key.

Step Time Record

This option, which is only available on the graphic editing screen, lets you record notes in step-time. In step-time recording, notes are entered either one at a time or in groups, separated by a specified time value. This is handy for entering parts that you may find too difficult to play on the keyboard.

The recording will begin after the last selected note in the displayed track. The notes will be separated by the current repeat time (described on page 53), and will be drawn with the current mouse draw attributes.

Notes can be recorded either by left clicking at the appropriate pitch in the track window, or by playing them on your MIDI controller. Chords can be entered by pressing several keys on your MIDI keyboard, and releasing them after you've created the chord. Notes recorded from MIDI use the duration set in the **Draw Attributes...** window.

Chapter 7

The File, Settings, and Utilities Menus

Three menus in Tiger Cub's menu bar have not yet been discussed. These are the **File** menu, which contains commands for loading and saving files, the **Settings** menu, which contains several switches and edit windows that affect the overall operation of Tiger Cub, and the **Utilities** menu, which contains options for performing various operations on single or multiple tracks.

The File Menu

Tiger Cub deals with many different kinds of files, most of which are handled from the File menu. .ALL files are KCS "all sequence" files. "Tiger Cub" files, which have a .CUB extension, contain everything found in a .ALL file, as well as data used by Tiger Cub such as the repeat time and various menu option settings. .MID files are standard MIDI files, used to exchange data between sequencers from different software publishers. Tiger Cub also allows you to save a default "startup" file, which contains all of the settings found in a .CUB file other than sequencer data.

Note that, before Tiger Cub saves a .CUB, .MID, or .ALL file, it strips out any redundant controller information or dummy (deleted) events, in order to minimize the file size. This means that the current selection will be lost and the screen redrawn each time one of these operations occurs.

Open...

Save...

These items deal with Tiger Cub .CUB files. Both bring up a GEM file selector, which allows you to specify the name of the file to open or save.

New...

This item allows you to clear the contents of all tracks, as well as the text area. After left clicking on **New...**, the window shown on the following page will appear.

The "Space Warning" Message

Occasionally, especially if you're using Tiger Cub on a 1040 ST, you may get a message that says "Space Warning". This means that Tiger Cub is running out of memory. If this happens, there are several things you can do. First of all, call up the **Environment...** option (from the **Utilities** menu, described in the next chapter). This operation automatically cleans up any redundant data that Tiger Cub may have accumulated. If you've been doing a lot of deleting, this will probably take care of the problem. (This is because Tiger Cub does not actually delete events when you ask it to; it simply replaces them with "dummy" events, which is faster, but more wasteful of memory.) If the message still appears, a last resort would be to reduce the size of the selection or paste buffers, which is explained on page 63. If you are running any MPE modules (as described in Chapter 10), eliminating one or more of them will free up memory for sequence storage.

Tiger Cub will play to the location of the next note after each note or chord is entered. You can use any of the following keys while using step-time recording to audition part or all of what you've entered, or affect the recording. The keys <F7> through <F10> change the durations of notes drawn with the left mouse or the MIDI keyboard.

<F1>	Play last step
<F2>	Play step-time recording
<F3>	Double repeat time
<F4>	Halve repeat time
<F5>	Insert a rest
<F6>	Delete last step
<F7>	Programmed duration
<F8>	Staccato
<F9>	Half legato
<F10>	Legato
<Space>	Play all

The functions of the function keys are duplicated by MIDI program change messages 0 through 9 (or 1 to 10 on a Yamaha controller, etc.) This lets you do all of your step-time entry in Tiger Cub from your MIDI keyboard.

The **Play** menu label will be highlighted while step-time recording is active. To end step-time recording, left click somewhere outside the edit track window, or press a key other than a play key.

Record

Record and Show

These two options allow you to record from within Tiger Cub's graphic editing screen. The only difference between the two is that **Record and Show** displays the recorded data on the screen as soon as it is recorded.

Recording on the graphic editing screen is a little different than on the tape recorder screen. The primary difference is that recording does *not* start as soon as you begin to play; rather, it begins only when you press the <Space bar> or any of the other play keys (except the right mouse button). It is possible to record short segments that don't necessarily start at the beginning of the piece by using one of the partial play keys (such as <Numeric 1>) to start the recording. As with the tape recording screen, Tiger Cub always records into the first empty track.

When **Record** is selected, the currently displayed track will remain visible while you record. This allows you to use a previously recorded track as a visual reference while laying down a new track. If **Record and Show** is

selected, a blank track will immediately appear, and the recorded notes will appear on the screen as you release the keys. Note that Tiger Cub does not automatically scroll when you are recording on this screen, so you will probably want to zoom out so that the entire song, or the section over which you are recording, is visible before you start to record.

Recording stops when the end of the track is reached, or when you press the <Space bar> to stop playback, or when you press the right mouse button.

Continuous controllers and aftertouch data will only be recorded if they are enabled on the tape recorder screen, so you should probably check these buttons before you start recording.

Audible Metronome

Play Metronome

These switches do pretty much what you'd expect. **Audible Metronome** turns on the sequencer's audible metronome, a feature that some musicians can't live without, and which others can't stand. If **Play Metronome** is turned off, the metronome will only be heard when recording. These switches affect the metronome on both the tape recorder and the graphic editing screens.

The audible metronome cannot be used if you are using the ST's internal sounds to play music.

Auto Record

This switch, which only affects the tape recorder screen, tells Tiger Cub how to handle recording at the end of a track. If **Auto Record** is turned on, then Tiger Cub will continue to record on the next available track when the end of the song (or the cue loop) is reached. With **Auto Record** turned off, recording is turned off at the end of the track.

Erase Last Track

This menu option is used, surprisingly enough, to erase the last recorded track. It is only available on the tape recorder screen, and is duplicated by <Control-X>. If you want to erase a track while recording it, use the **X-REC** button, as explained on page 22.

The Display Menu

This menu contains several options that open edit windows for various display functions, as well as a set of switches for changing certain aspects of the display.

Fill Right

Fill Left

These options paste in copies of the selected notes from their location to the end or the beginning of the track, respectively. The copies are separated by the repeat time. These options are duplicated by <Control-Insert> and <Control-Clr/Home>, respectively.

Fill

This option pastes in copies of the selected notes from the beginning to the end of the track. The copies are separated by the repeat time. This item is duplicated by <Control-Cursor Up>.

NOTE

Note that, if your track is very long or if a lot of events are selected, then all of the fill operations described above can be VERY slow. If you accidentally select one of these operations, press <Undo> to cancel it--you won't need to wait for the operation to finish.

Repeat Draw and Select

The *Draw* and *Select* left mouse modes can also use the repeat feature. If you hold down the <Alternate> key when selecting a note, every note from that note to the end of the track that is separated from the original by a multiple of the repeat time will be selected. Similarly, drawing or pasting notes with the <Alternate> key depressed will repeat the notes at intervals of the repeat time. If the <Control> key is depressed, the select, draw or paste operation will be repeated in both directions.

If a horizontal range is specified, then repeat drawing and selection will only occur within that range.

REPEAT TIME

☒ 1/16
 ☐ 1/8
 ☐ 1/4
 ☐ 1/2
 ☐ 1
 ☐ 2
 ☐ 4
 ☐ 8
 ☐ User →

☒ Straight
 ☐ Dotted
 ☐ Triplet

Repeat Time Window

This window displays the current repeat time, and lets you select one of several new values. The field labeled **Amount** contains the current repeat time, which may be edited in the usual way and used as the new value if the **User** option is selected. The buttons labeled 1/16 through 8 set the repeat time to the appropriate note size, from a sixteenth note up to eight measures. If notes are selected or a horizontal range is active, two more buttons will appear, labeled **Copy Selection** and **Copy Range**. The first sets the repeat time to the time between the beginning of the first selected note and the beginning of the last, and the second sets the repeat time to the length of the horizontal range. Both values are displayed in steps immediately below each button.

The remaining three buttons in this window let you further modify the value selected by the other buttons. If **Straight** is highlighted, the repeat time is set directly from the other buttons. If **Dotted** is highlighted, the resulting value is 1.5 times as long as the selected value, which corresponds to a dotted note in traditional music. If **Triplet** is selected, the repeat time is multiplied by 2/3, which is equivalent to selecting a triplet version of the note value specified at the top of the window.

Double Halve

These two options are a quick way to change the repeat time by musically useful ratios. Each does what you'd expect, and they are duplicated by the <Control-D> and <Control-H> keys, respectively.

Copy Right Copy Left

These options copy the selected notes or controllers to the right or left. The start of the original and the start of the copy will be separated by the repeat time. These items are duplicated by <Control-Cursor Right> and <Control-Cursor Left>.

Conductor Track

This switch is used to add or remove the display for the conductor track, as described on page 33.

Restore Range

This is used to restore the last selected horizontal range. Horizontal ranges are discussed in Chapter 6.

Colors...

If you're using a color monitor, selecting this menu option brings up a window where you can change the proportion of red, green, and blue used in each of the four screen colors, using a system that should be familiar to all ST owners. After you left click on **OK**, the program will display the new colors before returning to the main screen; if you like them, left click on **OK** again, or left click on **CANCEL** to undo the changes. Tiger Cub keeps track of the colors for the two main screens separately, so you can adjust them independently. The screen colors are stored in the startup file.

If you're using a monochrome monitor, left clicking on this menu option will simply reverse the color scheme.

Add Controller...

This option is used to add a new controller window to the current track display. When the edit window appears, enter the CC number of the controller you wish to display, then left click on **OK** or press <Return>. The CC (continuous controller) numbers for all of the officially assigned MIDI controllers are listed on page 91.

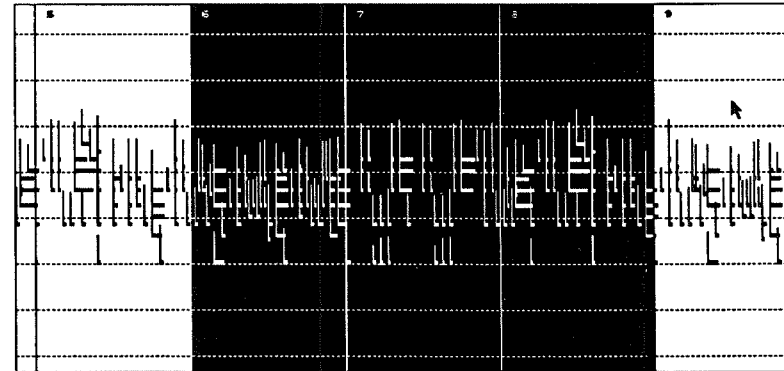
This edit window can also be called up by pressing <Control-W>.

Redrawing the Screen

The entire graphic editing screen can be redrawn by pressing the <!> (<Shift-1>) key. This is especially useful if a desk accessory damages the screen.

The <Numeric Period> key will redraw the screen with the current mouse position as the left edge of the screen. Note that this uses the exact mouse position, rather than the nearest measure, as the starting point.

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Horizontal Range

After a horizontal range has been created, you can move either end away from the center by <Shift> left clicking outside of the range. The end of the range may be moved back by <Shift> left clicking within the range, but the beginning of the range cannot be moved ahead after it has been established. If the *Quantize* icon is highlighted, then the range start and end will be quantized to the current quantize value.

Four keys on the numeric and QWERTY keypads are also used for selecting horizontal ranges. The <Numeric > key selects a range from the start of the track to the mouse position, and <Numeric)> selects a range from the mouse position to the end. If Tiger Cub is playing a portion of a track, then the <Numeric /> key selects the section that is playing; otherwise, this key selects and plays the current mouse measure. Finally, the <?> (<Shift-/>) key selects the entire track.

Editing with Repeats

The **Repeats** menu, in combination with certain key and mouse combinations, is used to draw, copy, or select notes that are separated by a certain amount of time. This time is called the *repeat time*, and is set with the first three options in the **Repeats** menu.

Repeat Time...

This item brings up an edit window for setting the horizontal separation (time) between repeat operations, which is shown below.

The editing keys only affect selected notes and controllers. They do not affect the contents of a horizontal range, unless the notes or controllers in the range are also selected. This allows you to specify a horizontal range for looping, and also specify other notes in the range for editing operations.

Recording with the Mouse

When Tiger Cub is playing, you can use the keyboard or controller strip beside the appropriate windows to record notes or controllers in real-time, at the current play position. This lets you record a melody or control contour as the music plays, using the keyboard or controller strip much like a physical MIDI controller.

A left click on the keyboard will draw or paste notes (depending on the highlighted left mouse icon) at the current play position. Clicking or dragging the right mouse button on the controller strip will insert controller events at the play position, and the left mouse button will change the value of existing controller events only. Controllers can only be recorded when the play cursor is visible on the screen, though they may be edited, and notes may be drawn or pasted, no matter where the play cursor is located. When controllers are recorded this way, the program will pause momentarily when you release the mouse button, while it inserts the proper data in the track.

Horizontal Ranges

When the *Horizontal Range* icon is highlighted, dragging the left mouse button selects a horizontal range. Horizontal ranges are ranges that encompass the entire "width" of the track (all notes and controllers) and a specified horizontal length. The range will be displayed in reverse video, as shown below.

Chapter 6

Editing with Tiger Cub

Tiger Cub offers several different ways to edit note and controller data. The most obvious is with the mouse, which is used to edit either individual notes, or groups of selected notes. The Edit menu contains several options for editing selected notes, and several keys on the QWERTY keypad are dedicated to editing operations on selected notes. In addition, Tiger Cub has some advanced editing features which allow you to insert multiple copies of a group of notes, and for repeating edit operations at a user-defined time interval. In this chapter, we'll look at methods for selecting and editing notes and controller data.

The Left Mouse Icons

As mentioned earlier, the nine icons between the tape recorder icon and the tempo indicator are used to determine the function of the left mouse button. These icons are radio buttons, which means that selecting one will deselect all of the others. The nine icons, and their functions, are listed below.



Note Draw: When this icon is highlighted, the left mouse button can be used to draw notes on the screen. Note drawing is described on page 44.



Paste: When this icon is highlighted, the left mouse button is used to place the contents of the paste buffer on the screen. Pasting is described beginning on page 44.



Select: When this icon is highlighted, the left mouse button can be used to select one or more notes for editing. Note selecting is described in the next section.



Horizontal Range: When this icon is highlighted, the left mouse button can be used to define a horizontal range. Horizontal ranges are described on page 52.



Erase: When this icon is highlighted, left clicking on a note will erase it.



Edit Pitch: When this icon is highlighted, the left mouse button can be used to change the pitch of a single note.



Edit Velocity: When this icon is highlighted, the left mouse button can be used to change the velocity of a single note.



Edit Duration: When this icon is highlighted, the left mouse button can be used to change the length of a single note.



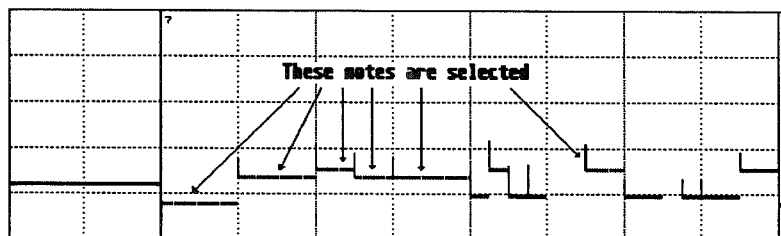
Move Note: When this icon is highlighted, the left mouse button can be used to change the horizontal position (starting time) of a single note.

Each icon also has its own special mouse cursor, which should help you keep track of what's going on.

Selecting Notes for Editing

All of the operations in Tiger Cub's **Edit** menu are performed on what we call, logically enough, the *selected events*. Notes (or controller values) may be selected in groups of one or more, or as part of a horizontal range. Horizontal ranges are discussed later in this chapter; for now, we will concentrate on the other types of selection.

Selected notes are drawn as dashed bars. The following screen shot shows notes that are selected, along with notes that are not selected.



This picture should tell you one important fact, namely, that *the selected notes do not have to be adjacent*, either in pitch or in time. This is an important point, since it allows you to perform editing operations on notes that are musically related in any way that strikes your mood, rather than only on groups of nearby notes.

Notes may be selected only when the *Select* icon is highlighted, as described on page 41. A single note may be selected by left clicking on it. If the note is already selected, it will be deselected. The click should be

Copy/Push does an insert using the notes and controllers in the selected horizontal range for all twelve tracks.

Split Selected...

This option, which is only available on the graphic editing screen, lets you copy or split the selected events to another track. If **Copy** is selected in the edit window that appears when you select this option, the events will be duplicated in the destination track. If **Split** is chosen, the selected events will be moved to the destination track, and deleted from the original track. In both cases, the events placed in the destination track will be rechannelized to match the destination track.

Insert Space...

This option allows you to insert space in one track, or all twelve. (Actually, it inserts *time*, not space, but then again, Einstein tells us they're the same thing, hmm?) **Insert Space...** is only available if a horizontal range is specified. The time will be inserted at the beginning of the horizontal range. The amount of time to be inserted, as well as the number of tracks in which to insert the space, can be specified in the edit window.

Editing with the Keyboard

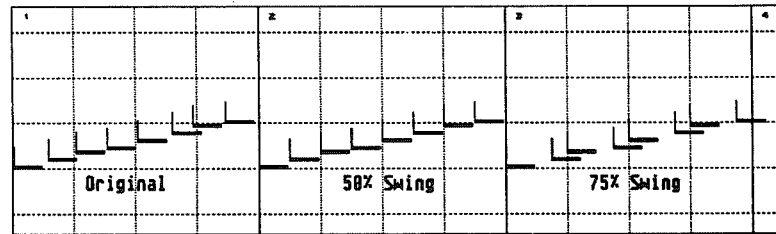
Several keys on the computer's keyboard may also be used to edit the selected notes.

The last two keys on the top row (<-> and <=>) will increase or decrease the durations of the selected notes. If either key is pressed alone, the durations will change by the time equivalent of one pixel, or if a <Shift> key is down when you press <-> or <=>, they will change by four pixels. If you ignore the "equals" symbol on that key, and think of it as a <+> key, it will be very easy to remember what these keys do.

Similarly, the two keys just below the duration editing keys can be used to edit the velocities of the selected notes. The <[> key lowers the velocities of the selected notes by four, and the <]> key raises the velocities by four. Holding down a <Shift> key when pressing either of these keys changes the amount of velocity change to 16 units.

The four cursor control keys also can be used to edit selected events. <Cursor Left> and <Cursor Right> will move the selected events forward or backward by one pixel's equivalent in steps, and the <Cursor Up> and <Cursor Down> keys transpose pitch up or down by one semitone, or will raise or lower the patch number of any selected PG events.

The **Basic Quantize** option does a simple "no-frills" quantize operation on the selected notes. **Quantize with Swing** does a more complex operation, in which each pair of "hit points" in the quantize grid is divided into two beats: the downbeat (first), and the upbeat (second). The **Swing** setting determines the portion of time that is allotted to the downbeat. If set to 50%, the upbeat and downbeat will be equal in length; if set to 75%, the downbeat will be longer than the upbeat, as shown in the following diagram.



Notes Quantized with 75% Swing

Move...

This item brings up a simple edit window which allows you to move the selected notes or controllers forward or backward in time by the specified number of steps.

Copy/Delete Range...

This option, which is only available when a horizontal range is selected, performs several edit options that affect all of the notes and controllers in the specified horizontal range, either in the current track, or in all tracks.

Erase and **Delete** remove the specified events, with the following distinction: **Erase** removes only the events, and **Delete** removes the events and moves the following events back to fill the gap. **Erase** is equivalent to erasing a section of tape, while **Delete** is more like cutting out a section of tape, and then splicing the ends together. (Of course, you can't do this with a single track in an actual multi-track recording—which is one reason that sequencers are taking the place of tape decks in so many instances.) If the **All Tracks** option is set to **Yes**, the range will be erased or deleted from all twelve tracks.

The two **Copy** operations make the specified number of copies of the selected range immediately to its right. **Copy** simply replaces the material in the destination measure(s) with a copy of the selected range. **Copy/Push** inserts the copied segment in the track, thereby pushing the existing material to the right. If the **All Tracks** option is selected,

fairly quick, since clicking and holding the left mouse button does something else (which we'll discuss at the end of this section). Note that a note cannot be selected if it starts at some point beyond the left side of the screen, as with the first note in the example above.

A group of contiguous notes may also be selected by "dragging" the mouse, as in many paint programs. To do this, position the mouse above and to the left of the notes you wish to select, press the mouse button and, while keeping the mouse button depressed, move it down and across the notes in question. A "rubber band" box will appear around the area you've selected; when it is properly positioned, release the mouse button, and those notes will be selected, or added to the previous selection if either <Shift> key is depressed.

Once you've selected a note or group of notes, more notes can be added to or deleted from the selection simply by holding down the <Shift> key and left clicking on them. The current selection will be cleared anytime you left click in a track window, other than on a note, without holding down the <Shift> key, or by pressing the <Clr/Home> key. The selections are also cleared automatically any time you load or append a file, or when you select the **Environment...** menu option.

All of the notes in a track or horizontal range can be selected with the <\> key. Multiple notes can also be selected using the "repeat" options, as discussed later in this chapter.

The number of single events that may be selected at any time is determined by a data field in the **Environment** window, described on page 63.

Moving a Group of Notes

When the **Select** icon is highlighted, clicking quickly on a note with the left mouse button selects the note, as explained earlier. However, if you press and hold the left mouse button, you can select and move a note or group of notes. If you "grab" an unselected note, only that note may be moved, but if you grab a selected note, all selected notes can be moved. The mouse pointer will change to a pointing hand to indicate that you may move the notes. If the <Left Shift> key is held down when you grab the notes, they can only be moved horizontally (the pitch remains the same), or if <Right Shift> is held down, only vertical motion is possible (timing remains unchanged).

If you attempt to move a group of notes beyond the left or right edge of the display, the display will scroll in the proper direction when the mouse crosses the edge of the display.

Drawing Notes

The left mouse button can be used to draw notes on the screen whenever the *Draw* icon is highlighted. In this mode of operation, the mouse cursor becomes a pencil. Clicking the left mouse button will place a note at the tip of the pencil, whose initial velocity and duration are set by the **Draw Attributes...** option in the **Settings** menu. If, however, you press and hold the left mouse button (instead of just clicking quickly), then the duration and velocity of the note will track the mouse cursor's motion until you release the mouse button.

If the *Quantize* icon is highlighted, then note times will be quantized as they are drawn. Whether or not you're using quantization, it's a good idea to use the mouse position indicator to precisely position your notes as they are being drawn.

Notes will be played as they are drawn if the **Play when Selecting** switch is turned on.

Pasting with the Left Mouse

When the *Paste* icon is selected, Tiger Cub inserts a copy of the contents of the paste buffer in the track each time you click the left mouse. The paste buffer must first be filled using the **Copy** or **Cut** menu options, described on page 48. The first event in the paste buffer will start at the tip of the stream of paint in the *Paste* mouse cursor. If the <Right Shift> key is held down when pasting, the pitches of the pasted notes will be identical to those in the paste buffer, with no transposition.

Note that the paste buffer can contain either note events, controllers, or both. Even if the paste buffer contains only controllers, you must still left click in the note display area to paste the controllers in the track. When pasting notes, the placement of the first event *only* will be affected by the *Quantize* icon; all other pasted events will retain their original relationships to the first event. You should also note that, if two or more notes start on the same time step, it may not be clear as to which is the first event. The only way to determine this is through trial and error.

Notes will be played as they are pasted if the **Play when Selecting** switch is turned on.

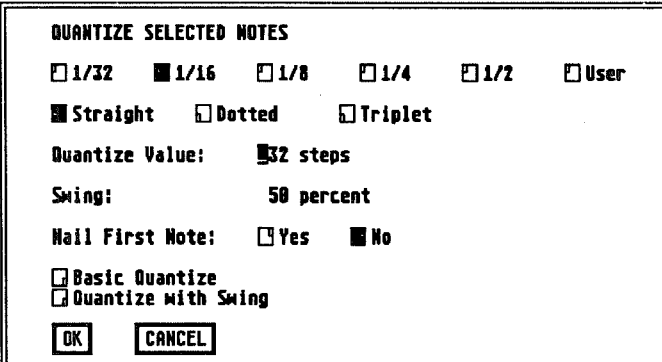
selection. **Vels & Durs** has the opposite effect, reversing only the velocity, duration and channel (if necessary) elements of each note, while retaining the order of the pitches.

If the **Limit to Legato** switch is on, the durations of any reversed notes will be limited to prevent note overlap.

Note that, because of the way Tiger Cub handles long notes, notes that are more than 999 steps long won't be handled properly by **Time Reverse**.

Quantize Selected

This item performs a quantization (auto-correction) operation on the selected notes. After you choose this item, the following edit window will appear.

A dialog box titled "QUANTIZE SELECTED NOTES". It contains several options: "1/32", "1/16", "1/8", "1/4", "1/2", and "User" (all with checkboxes); "Straight", "Dotted", and "Triplet" (all with checkboxes); "Quantize Value:" followed by "32 steps" (with a dropdown arrow); "Swing:" followed by "50 percent" (with a dropdown arrow); "Nail First Note:" followed by "Yes" and "No" (both with checkboxes); "Basic Quantize" (with a checked checkbox); and "Quantize with Swing" (with a checked checkbox). At the bottom are "OK" and "CANCEL" buttons.

QUANTIZE SELECTED NOTES

☐ 1/32 ☒ 1/16 ☐ 1/8 ☐ 1/4 ☐ 1/2 ☐ User

☒ Straight ☐ Dotted ☐ Triplet

Quantize Value:

Swing:

Nail First Note: ☐ Yes ☒ No

☒ Basic Quantize
☒ Quantize with Swing

OK CANCEL

Quantize Edit Window

The buttons at the top of this window, along with the **Quantize Value** parameter, set the "grid" for quantization. After a quantize operation, the times of all selected notes are adjusted so that they fall on multiples of the specified rhythmic value. If the button labeled **User** is selected, then the **Quantize Value** is used to set the quantization time. For example, if the button labeled **1/4** is selected, then the quantized notes will end up on beats 1, 2, 3, 4, etc. If either the **Dotted** or **Triplets** buttons are selected, then the specified value is modified accordingly (eighth note triplets, dotted quarter notes, etc.)

If the **Nail First Note** switch is selected, the quantization will be referenced to the first selected note, which won't be moved by the quantize operation.

music, then loop that section, you can alternate between the original and quantized versions by pressing <Undo> repeatedly.

Copy

This item copies the selected notes to the paste buffer, and is used in conjunction with the left mouse *Paste* icon. The maximum number of events that can be copied to the paste buffer is set by the **Paste Buffer** parameter in the **Environment...** window, as described on page 63. **Copy** is duplicated by <Control-C>.

Cut

This is identical to **Copy**, except that the selected notes are deleted from the track. **Cut** is duplicated by <Control-X>.

Pitches...

This item is used to transpose the pitch of the selected notes. The two buttons labeled **Transpose Up** and **Transpose Down** in the edit window that appears determine the direction of the transposition, and the numeric value determines the amount of transposition, in semitones. To transpose the selected notes, first set a transposition value, then either left click on the appropriate option followed by **OK**, or left click on the option while holding down the <Shift> key.

This item is duplicated by <Control-P>.

Velocities...

This option affects the velocities of all selected notes. **Increase** and **Decrease** are roughly equivalent to the **Transpose Up** and **Transpose Down** buttons in the **Pitches...** edit window. **Scale** is used to multiply (or scale) the velocities of the selected notes by the specified percentage.

The **Velocities...** option is duplicated by <Control-V>.

Time Reverse...

This item reverses the selected notes, controllers, or range in time. If a range is highlighted, everything in the range will be "flipped" horizontally when you left click on **OK**, much as if you had cut out a piece of tape and reversed it. On the other hand, if a group of notes and/or controllers is selected, only the note or controller attributes will be reversed--the event times themselves remain the same.

When you reverse a group of selected events, three radio buttons determine what will be reversed. **All** reverses all aspects of the selected events. If **Pitches Only** is chosen, only the note values will be reversed, which is useful when you don't want to change the rhythm of the

Editing Individual Notes

The five icons immediately to the left of the tempo display tell Tiger Cub that the left mouse button will be used to edit a single note. Left clicking on a note when one of these icons is highlighted will deselect any selected notes, and also begin the editing operation.

When the *Erase* icon is active, left clicking on a note will erase it.

The *Move* icon is used to move a single note horizontally without changing its pitch. Select the note by left clicking just to its left or right, at the same pitch level as the note bar itself, and then move the note horizontally with the mouse. Similarly, the *Edit Pitch* icon is used to move a single note up or down in pitch, without changing its time. Left click just above a note to select it, and then it can be moved vertically with the mouse.

The duration or velocity of a single note can be edited by selecting either the *Edit Duration* or *Edit Velocity* icon. With these icons, left clicking on or near a note will cause either the note bar or velocity stem to follow the mouse motion. (If you don't click exactly on a note, Tiger Cub will make an educated guess as to which note you meant to click on, which will usually be the one you want.) When these quantities are being edited, the numeric value will be shown in the mouse position window.

If the **Play when Selecting** switch is turned on, then Tiger Cub will periodically play the note that is being edited, so you can hear the changes in each note as you make them.

All of the left mouse edit operations can be undone with the <Undo> key.

Drawing with the Keyboard Icon

If Tiger Cub is playing, the keyboard icon can be used to draw individual notes or to paste the contents of the paste buffer in a track. The results of a click on the keyboard icon will depend on the highlighted icon, as well as the status of the <Shift> keys.

If a *Draw* icon is selected, a note of the appropriate pitch will be recorded when you left click on the keyboard, using the current note draw attributes. If you hold down the <Right Shift> key when clicking on the keyboard, the note will be played, but not drawn.

If the *Paste* icon is selected, then left clicking on the keyboard while Tiger Cub is playing will insert the contents of the paste buffer in that track, with

the first note in the buffer at the pitch that you clicked on. If the <Right Shift> key is held down, the notes will be pasted at their original pitches.

If you press and hold the left mouse button over the keyboard while the *Draw* or *Paste* icons are highlighted, notes or phrases will be inserted repeatedly in the track. The notes or phrases will be separated by the repeat time, which is set in the *Repeat* menu. If the <Left Shift> key is depressed when you first press the mouse button, then further vertical mouse motion is ignored—that is, all notes or phrases will be inserted at the same pitch. This is intended to prevent small, accidental mouse movements from changing the pitch of a repeated note, especially drum notes.

Editing Controllers with the Mouse

The mouse buttons can be used to draw or select controller events in any of the controller windows. The right mouse button is always used to draw controller values, and the left mouse button selects or edits existing controllers.

All mouse controller actions can be undone with the <Undo> key.

Right Mouse Controller Drawing

The right mouse button is used to draw new events in a controller window. Its operation is affected by the modifier keys, as shown below.

No modifiers: Continuous draw
<Left Shift>: Single event
<Right Shift>: Insert zero

The density of the controllers in the track will depend on the magnification used when you draw the controller curve. If you want a very high-resolution controller contour, zoom all the way in before drawing the curve. Tiger Cub automatically deletes any redundant controller events any time you enter the *Environment...* window, or when a file is saved to disk.

Controllers can also be drawn in real-time with the mouse at the current play position, as explained later in this chapter in the section on *Recording with the Mouse*.

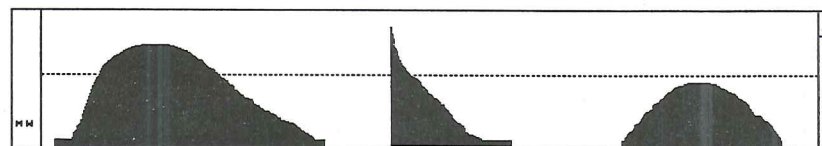
Left Mouse Controller Editing

The edit operation performed by the left mouse button also depends on the modifier keys, as shown on the following page.

No modifiers: Set controller value
<Right Shift>: Set to zero
<Alternate>: Select controllers
<Control>: Delete controllers

In VE windows, the left mouse button always sets the note velocity, since the other operations are meaningless with velocity.

Selected controllers are drawn with the lowest few pixels blanked out, as shown in the following screen shot. (The second group of controllers is selected, and the others are not.)



Selected Controllers

The Edit Menu

The *Edit* menu contains several options for editing the selected notes, controllers, or horizontal range. These include options for performing different types of cut-and-paste editing, along with options for moving and transposing notes and controllers.

The editing operations in the *Edit* menu may be performed on either selected notes and controllers, or horizontal ranges. Most are appropriate for both types of selection; if an operation is not applicable to the selected data, it will not be available. If both a horizontal range and individually selected events are present in the display, and the edit operation you've chosen is applicable to both, only the selected events are affected.

All items in the *Edit* menu can be undone with the <Undo> key or the *Undo* menu option.

Undo

This item duplicates the function of the <Undo> key. As a general rule, it undoes the last editing or drawing operation. *Undo* is a reversible action, that is, selecting *Undo* twice has the effect of undoing *Undo*.

Because the *Undo* operation (like all editing operations) can be done while Tiger Cub is playing, you can use *Undo* to hear the effects of your editing operations in real-time. For instance, if you quantize a section of