XGedit MAC

The Yamaha XG Editor

By

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Help Contents

The help topics available for XGedit are listed below

1. Introduction

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If you find this program useful and wish to continue using it beyond the 21 day evaluation period, you are obliged to register your copy with the author (See the help file section **Registration** for details).

What Is XGedit?

XGedit is an editor/librarian for the Yamaha XG series of synthesiser modules. The editor may also be used in GM mode to edit the parameters of other synth modules and sound cards.

The main features of the program are as follows:-

Access to all XG parameters in real-time using simple mouse actions.

A single dialog window designed to represent a conventional rack based synth front panel.

Parameters separated into logical groups:-

Master Module
Part/Drum Module
Effects and Controller Module
Effects Parameters Module
Enables Module
Keyboard
Voice Selection
Analogue To Digital Converters

LCD panels providing overviews across parts for the main system parameters and Mini Mixer functionality

All edits may be performed as System Exclusive messages, with a limited subset being provided as controller messages (GM Mode).

Soft midi thru with re-channelisation to current edit part

On Screen control wheel for continuous controllers

Instant auditioning of parts from on-screen keyboard.

Full Save/Load facilities (*in registered version*) for complete module, individual parts and drumsets.

Saving of parameters (*in registered version*) to type 0/1 Midi files for import into sequencer software (with choice of message content Sysex/Controllers).

Merging of Editor Setup data to imported midi files

Midi file playback for simultaneous editing

XG level 1 Edit mode for maximum file compatibility across XG synths

Full program description and on-line help

(XGedit provides only limited midi file sequencer functionality - this is only provided for auditioning of editor setups with imported midi files......true sequencer functionality is best left to dedicated software. To this end XGedit may be used in parallel with your favourite sequencer to perform real time edits).

If you have any modifications you would like to see incorporated (or bugs you would like removed) please contact the author. However support will only be guaranteed to registered users.

2. Getting Started

2.1 System Requirements

The program is designed to operate on machines with the following specification

- A PPC or 68K Macintosh computer running MAC OS 7.0 or above (XGedit is compiled as a Fat Application. Hence one binary will run on both platforms)
- 8MBytes RAM
- 1.5Mbytes Disk space
- Either Opcodes OMS Midi driver software V2.0 or above or MOTU FreeMidi driver software V1.25 or above (configured for use with attached XG Synthesiser
- Mouse

It is recommended that the program be used at a minimum display resolution of 800 x 600 with 256 colours. However to allow use on display resolutions below this, the dialog window boundary is sizeable and may be scrolled. (note XGedit graphics are optimised for colour use. Operation on grey scale displays may be acceptable, but black and white is not recommended)

2.2 Installation

- Unpack the XGEDIT.SIT archive to an appropriate directory.
- Move the Avante Garde Font to your SYSTEM fonts directory (this may be achieved by dropping the Avante Garde font suitcase onto the System folder).
- click on the XGedit icon to start the program.

2.3 Configuration

From the Setup Menu choose the Select Synth Menu item to bring up the synth selection dialog box. From the dialog box select the synth type corresponding to your attached XG synth, then click the XG button to initiate the selection.

From the Setup Menu choose the Setup Midi menu item to bring up the midi port select dialog. Select the driver software installed on your MAC (either OMS or FreeMidi) and use the drop down menus to select the ports which correspond to your attached XG synth.

XG   *The selected ports will be stored in the XGEDIT Prefs file for use in future sessions.*

XGEDIT

XG

Note if using multiple midi output ports (with an MU80), Midi Output A should be always be connected to and directed at port A of the MU80.

XG

If no ports are available under the drop down menu then you may need to configure the OMS/FreeMidi midi drivers first. The system configuration dialogs may be accessed from the Setup Menu, Studio Setup and Midi Interface items. Refer to the OMS/FreeMidi documentaion or the Xgedit Help file section "Working With Midi Files" for information on configuring your drivers

To test if the XG synth module is in communication with the program, click on the display keyboard. If you hear the notes being played then everything is OK. If not:-

- Confirm the correct drivers are installed by using an alternate program to drive the synth.
- Check all midi leads are correctly connected.

Once you can hear notes being played from the keyboard, try moving the volume knob within the Part module. If the sound level from the synth changes accordingly then everything is OK. If not:-

- Select the XG Reset button to ensure the attached synth is in XG mode.
- Check the UNIT Number displayed in the Master Module matches that of the Attached synth (if in doubt Press the GM button and try the Part volume knob again. If the knob now works, then you have probably changed the default setting (ALL) for the XG UNIT number. Click on the GM button again to return to Sysex mode and adjust the UNIT number dial until the volume knob works.

You're now ready to start editing

I hope you enjoy the program and support future versions by **registering**.

Thanks

G Cregson

3. The Main Screen

The main screen consists of a single dialog window from which all XG parameters may be accessed.
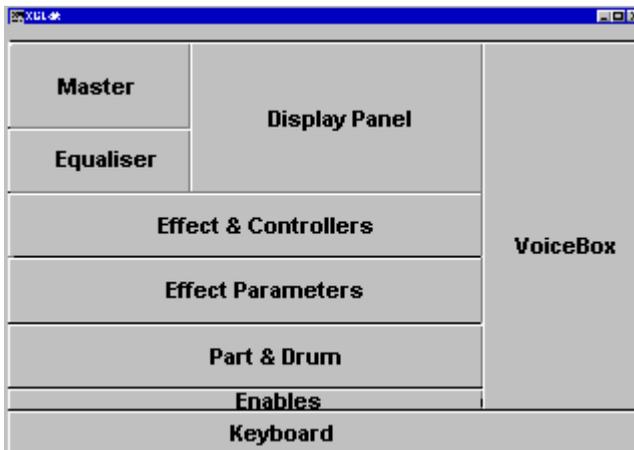
3.1 Controls
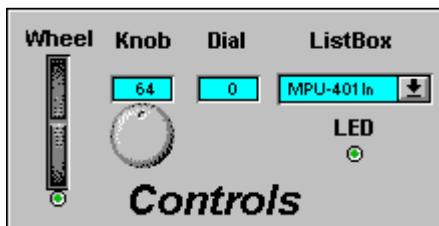
3.1.1 Knobs

Activated by pressing and holding down the mouse button over the knob face (the dial above the knob illuminates to provide a digital readout). Moving the mouse with the button down will cause the knob to rotate

Up / Left   anti-clockwise
Down / Right   Clockwise

Releasing the mouse deactivates the knob. The knob will turn Yellow when the control is in its non-default position.

XG Some users may prefer the knob/dial action to behave more like faders. I.e. Mouse Up increases value and down decreases value. If so, use the Setup Menu, Reverse Dial action check item to change the controls behaviour.

XG Controls can be reset to their default position by double clicking the control with the mouse.

XG Holding down the Command key whilst operating a control will decrease the mouse sensitivity by a factor of 10, thus allowing fine adjustments to be made.

XG Note that the mouse does NOT have to remain over the knob face. So long as the mouse button is down, the mouse may be moved large distance and still operate the control

3.1.2 Dials

Dials are digital readout controls with no associated knob. To adjust the value press and hold the mouse button down over the dial. Moving the mouse with the button down will increment the dial.

Up / Left   decrease
Down / Right   Increase

Releasing the mouse deactivates the dial

XG The above tips on operating knobs, also apply to dials.

3.1.3 LED's

LEDs are toggle controls, activated by single clicking with the mouse button.

Green (depressed)   Enabled
Grey (Depressed)   Enabled but cannot be modified in current mode
Red   Disabled
Grey   Disabled and cannot be modified in current mode

3.1.4 Buttons

Buttons are activated by clicking with the mouse button.

Silence Button

A standard push-button - Resets all notes and controllers. Press to silence hung notes. Caution - this will also reset

the controller wheel positions.

XG Button

A standard push-button - Resets the attached synth module to XG mode. Caution - all current edits will be lost.

GM Button

A two state push button. If the button is up the program will use System Exclusive messages to communicate with the synth module. If the button is down the program will use only channel based controller messages.

Note that only a small subset of the XG parameters may be altered by controller messages (Controls update to show which are available).

Most GM synths respond to the controls available in GM mode. However, some Non Registered (NRPN) Midi Control Messages may be mapped to different functions.

If XGedit is to be recorded by a sequencer, the user should be aware of the advantages and disadvantages associated with each mode:-

Sysex Messages	Controller Messages
Allow individual parts to be edited even if they share a common midi channel.	*Can cause unpredictable or undesirable effects if two parts share the same midi channel*
Difficult to selectively filter	*Easily selectively filtered*
Encompasses all available edit parameters	*May only be used for those parameters which have equivalent controller, RPN or NRPN message..*
More compact for large dumps and therefore faster to transmit. Better for global setups at the start of a song	*More compact for smaller edits and hence best suited for use within the body of a song.*

3.1.5 Wheel

The wheel represents a synth controller wheel. Pressing and holding the mouse button over the wheel allows the controller value to be altered. The LED below the wheel determines if wheel messages are automatically sent after controller parameter edits.

3.1.6 ListBox/PopUp Menu Boxes

Used to select values from a pre-defined list. Operate as standard Macintosh Lists and Popup Menus.

4. Master Module

The Master module controls the global settings for both the XGedit program and the attached XG synth module.

4.1 File Contents

4.1.1 Edit Data

The Following Three Radio button LEDs determine the contents of midi files saved from XGedit:-

EDITS ONLY	The Saved midi file contains a GM/XG reset plus those parameters which have been edited (Sysex messages are only used where no equivalent controller based message is available).
XF	The midi file is structured in accordance with Yamaha's XG authoring guidelines. The content is similar to Edits Only but also contains important parameters which may be at their default setting.
SYSEX	The midi file contains System Exclusive bulk dumps.

XG　*XGedit guarantees correct midi timing for saved events as stated in the XG specification.*

XG　*If the editor Setup contains multi part layers (i.e. several synth parts assigned to the same midi channel), then the user must utilise the Sysex midi save format to ensure correct interpretation within a sequencer. I.e. Sysex messages are midi channel independent.*

XG　*The status of the Content option will be saved in the XGEDIT.Prefs file for use in future sessions.*

4.1.2 File Format

Type 1 LED	Determines the format of the midi file.

Type 0 files contain a single track incorporating all midi channels. All sequencers should be capable of reading this format

Type 1 files contain multiple tracks and are more commonly used by modern sequencers.

Saved Type 1 midi files contain multiple tracks as follows:-

- System - A short track providing the GM/XGReset messages for module initialisation plus the global synth parameters (masters/effects/equalisation)

- One Track per part. - tracks contain midi controller and Sysex messages for the parts parameter edits. Each track will be named with its corresponding instrument assignment. (e.g. P1 - Harpsichord indicating the track is used by synth part 1 and is set to the Harpsichord voice).

- A To D track -contains Sysex/controller messages for both A to D parameter edits.

Tracks assigned to drum parts will also include any associated drum edits

Merged Type 1 files may be converted to Type 0 files by setting the Type1 LED off. However Type 0 files cannot be converted to Type 1 files.

4.1.3 Number Of Parts

Normally the saved file will only include tracks for System data, A to Ds and 16 synth parts. On the MU80 the user may choose to save all 32 synth parts. However, since there is no way to represent port number within a midi file, the user will have to perform this assignment later within a sequencer.

32PART	Determines the number of synth parts saved to the midi file.

The status of the Parts option will be saved in the XGEDIT Prefs file for use in future sessions.

4.1.4 Timebase

The timing resolution of a merged midi file is shown in the PPQ menu box. This indicates the timing resolution in Parts Per Quarter Note i.e. a value of 120 implies that there are 120 midi ticks per quarter note.

PPQ	Midi File timing resolution:-
	48, 72, 96, 120, 144, 168, 192, 216, 240, 360, 384, 480

The higher the resolution, the greater the accuracy of playback timing. However slower Computers may have problems playing back files at very high resolution.

Files saved from XGedit may be converted to a number of different resolutions by changing the PPQ selection.

In general a value of 384 is recommended for 68K based machines and a value of 480 for PPCs

XG   *The Timebase setting will be saved in XGEDIT Prefs file for use in future sessions.*

4.1.5 Tempo

This knob indicates a merged or saved files initial tempo.

Tempo	10 - 250 Beats Per Minute

The knob may also be used during midi file playback to alter the playback speed.

XG   *The XG Authoring guidelines recommend Tempo values between 32 - 250 bpm*

XG   *The Tempo setting will be saved in the XGEDIT Prefs file for use in future sessions.*

4.2 Playback Transport Controls

When a midi file is Merged into XGedit the playback transport controls become active.

Clicking on the left hand transport control will start file playback.

Clicking on the right hand transport control will stop file playback and rewind the file to its start.

These controls are only intended for simple auditioning of edits. For true sequencer functionality XGedit should be used in parallel with your favourite sequencer package.

4.3 Thru

The thru LED selects whether midi thru is enabled. If enabled; midi messages (with the exception of system exclusive) appearing at the input device will automatically be transferred to the output. If the current part is set to a specific midi channel 1 - 16 then all messages will be re-channellised to this channel. If the current part is set to 'NO' (i.e. the part is disabled), then no re-channellisation occurs.

For MU80 multi-port use, re-channellisation occurs together with automatic port selection.

XG   *The state is saved in the XGEDIT Prefs file for use in future sessions.*

4.4 Global Synth Controls

These controls adjust the synths global parameters:-

VOL	Master volume level	0 - 127
ATT	Master volume attenuation level	0 - 127
TUNE	Master tuning control	-102.4 - +102.3 cent
KSHIFT	Master Key Shift control	-24 - +24 semitones
UNIT	Module Unit Number (see below)	1 - 16

4.4.1 Unit Number

This dial selects the address of the XG module (in most cases the default value will be correct). If you have multiple external modules attached to your MAC, then you may wish to alter this value to select the desired module.

XG *Modules are factory configured to receive data on all device numbers*

XG *XGedit Level 1 authoring guidelines recommend that a unit number of 1 be used.*

XG *The dials state will be saved in the XGEDIT Prefs file for use in future sessions.*

5. Equaliser Module

The Equaliser module provides editing of the built in sound output equalisation unit.

XG *This function is only available on the MU80. For other XG synths use the equalisation built into Variation effects*

5.1 Equalisation Program Popup

The Popup Menu provides convenient access to the MU80 built in Equalisation macros. Selecting a macro will automatically update all equalisation controls to the appropriate values.

5.2 Equaliser Controls

BAND	Selects the band currently being edited	1 - 5
GAIN	Adjusts the gain applied to the current band filter	-12dB - +12dB
FREQ	Selects the frequency of the current band filter	32Hz - 16kHz as appropriate to band
Q	Adjusts the current filter Q value	0.1 - 12.0
SHAPE	Adjusts the filter shape	SHELF/PEAK

6. Display Panel

The display panel provides a graphical representation of the system parameters. The panel has eight modes, which are selected by clicking on the appropriate radio button above the display.

6.1 Volume Panel Mode

This mode provides a graphical representation of the Volume settings for each part. Each bar corresponds to a given part as indicated on the X axis. The bar labelled **S** represents the master setting.

Adjusting the volume of a given part will provide a visual representation of the relative volume level.

The Y axis indicates the range of values.

To adjust a parts volume click on the corresponding bar and drag up or down like a conventional fader.

Double clicking on a marker will reset its value to the default setting.

6.2 Pan Panel Mode

This mode provides a graphical representation of the Pan settings for each part. Operation is identical to that of the Volume mode.

The Y axis indicates the right/left position.

Double clicking on a marker will reset its value to the default setting.

6.3 Amplitude Envelope Generator (AMP EG) Panel Mode

This mode provides a graphical representation of the ADSR envelope of the current part. The highlight markers are used to change the envelope shape.

To change a marker click and hold the mouse button down over the marker. Moving the mouse left and right will decrease/increase the envelope parameter correspondingly. A digital readout adjacent to the marker provides the value for the current position (all markers may be set over the range -63 - 0 - +63).

Double clicking on a marker will reset its value to the default setting.

![XG] *If the Part module is in Drum Edit mode, then the AMP envelope corresponds to the current drum key amplitude envelope*

6.4 Pitch Envelope Generator (PITCH EG) Panel Mode

This mode provides a graphical representation of the Pitch envelope of the current part. The highlight markers are used to change the envelope shape.

To change a marker click and hold the mouse button down over the marker. Moving the mouse left and right will decrease/increase the envelope time parameter correspondingly. Moving the mouse up and down will increase/decrease the envelope pitch offset parameter correspondingly. A digital readout adjacent to the marker provides the value for the current position (all markers may be set over the range -63 - 0 - +63).

Double clicking on a marker will reset its value to the default setting.

6.5 Reverb Panel Mode

This mode provides a graphical representation of the Reverb settings for each part. Operation is identical to that of the Volume mode.

6.6 Chorus Panel Mode

This mode provides a graphical representation of the Chorus settings for each part. Operation is identical to that of the Volume mode.

6.7 Variation Panel Mode

This mode provides a graphical representation of the Variation settings for each part. Operation is identical to that of the Volume mode. (note the panel display is only available when the Variation effect is operating in system mode i.e. the effect module CON knob set to SYS)

6.8 A to D Panel Mode

This mode is activated by pressing the Microphone logo button. The mode provides an extra panel of controls for those synths equipped with Analogue to Digital Converters. (i.e. the MU80, MU10 and SW60XG PC Card) see AD Converters

7. A To D Converters

This module provides control over the A to D converters of the MU80/MU10 and SW60XG PC card synths.

7.1 AD Controls

AD1/AD2	Select current edit AD converter	Note AD1 may be used in stereo mode on the SW60XG
INPUT	Selects input gain level for external module AD inputs	MIC/LINE (only available on the MU80/MU10)
VOL	AD input volume level	0 - 127
PAN	AD input Pan position	63L - C - 63R
REV	AD input send level to Reverb unit	0 - 127
CHOR	AD input send level to Chorus unit	0 - 127
VAR	AD input send level to Variation effect unit.	0 - 127
DRY	AD input dry level	0 - 127
MIDI	AD midi channel number	1 - 16
CC1/CC2	AD Continuous controller assignments	0 - 95

7.2 AD Message Enables

When the AD channel is assigned to a midi channel using the MIDI dial, the following messages may be enabled/disabled:-

PRO	Program change messages
CC	General controller change messages not include above
VOL	Volume controller messages
PAN	Pan controller messages
EXP	Expression pedal messages
BS	Bank Select

7.3 General

The following general AD properties should be noted:-

XG *XGedit does not provide a specific capability to select the AD programs available in some XG synths. Incorporation of this feature would greatly increase the complexity of the application and confusion of the user (as such program changes have global affects on the synths Setup i.e. cause changes to multiple AD parameters and the system wide effects unit). If the user really must have this function .....then assign the AD to a midi channel and use the program changes within the voice box for the corresponding channel!*

XG *The SW60XG AD operation is affected by the cards on board mixer settings. In particular the use of the KARAOKE LOCK feature will disable AD edits (and Variation effect edits). The Mixer STEREO function also enables AD1 to be used as a stereo AD.*

8. Effects & Controllers Module

The Effects module consists of controls relating to both the global effects settings and the part based continuous controller settings.

8.1 Understanding The Effects Unit
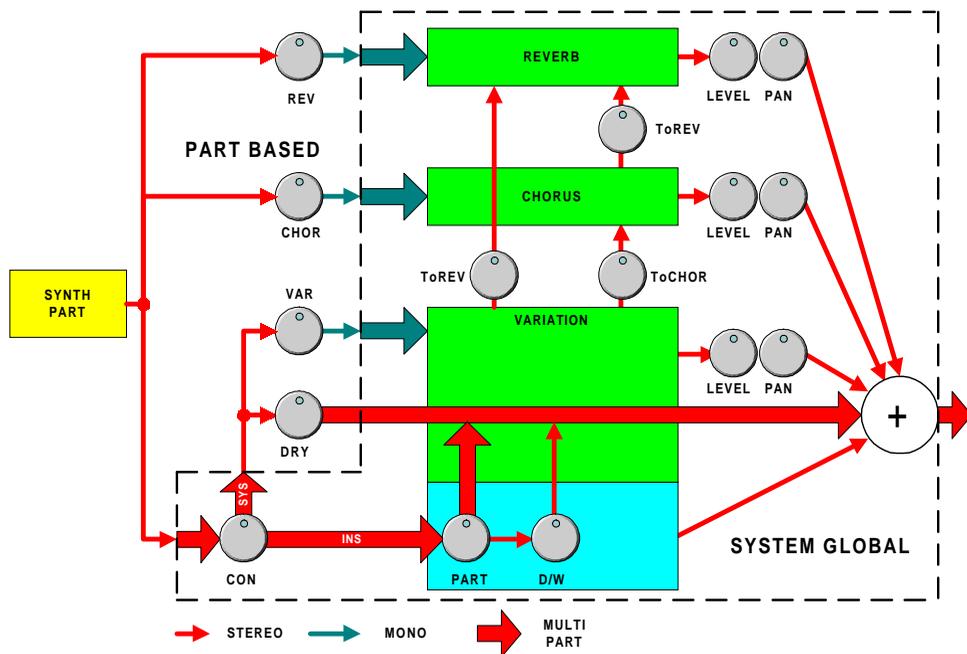
8.1.1 Three Effects Units

Basically there are three effects modules within the XG synth, namely REVERB, CHORUS and VARIATION (the MU80 actually has a forth named DISTORTION but this is in reality a second Variation Insertion effect). The three modules are System Global, i.e. changing the setup of a module affects ALL parts using that module. Consequently you may only have three different effects active at one time (four on the MU80). Furthermore each effect unit provides its own output level control LEVEL (Effect Return), and panning control PAN. Consequently you may independently control the amount and panning position of each effect as applied to the final sound output.

8.1.2 Individual Part Send Controls

The signals from each synth part are routed to the three effects units in proportion to their effect send controls (labelled REV,CHOR and VAR within the XGedit Part Module). Hence you may simultaneously apply full Reverb to part 1 by setting its REV knob to maximum whilst disabling Reverb on part 2 by settings its REV knob to zero. In this way you can control the amount of effect applied to each part as best suits your songs mix. It should be noted that the signal routed to the effects modules are monophonic, since the effects modules provide their own panning controls

8.1.3 Variation Connections

The Variation unit is special in that it has two modes of operation, namely System (SYS) and Insertion (INS). The desired mode is controlled using the CON knob within the XGedit Effects module (note that this control is system global and that the EFFECT Popup menu must first be set to Variation before the CON knob can be adjusted). If we study the routing schematic above, then we can see how these two modes alter the behaviour of the effects unit.

In System mode each synth part signal is routed via its Variation send control (VAR), which acts in a similar manner to the Reverb and Chorus send controls. Hence, in this mode the Variation module is system global. It should be noted that in this mode each synth part signal is also routed via a DRY knob. This controls the amount of dry (pure signal) that bypasses the effects units and is routed directly to the output. This is useful if you do not wish to fully effect a sound.

e.g. you want a fully dry signal from the left speaker and a fully effected signal from the right speaker. In this case you would set the part pan to left with the dry knob to maximum and the effect module pan to right with the effect send level to maximum.

If we look at the Insertion mode routing (CON set to INS) then things become somewhat more complex.. In this mode each parts signal is fed via the system global PART control. This control is used to select one part for Variation processing; all others are fed directly to the output as dry signals (hence the Part DRY knob is disabled, but Reverb and Chorus effects may be applied in the normal manner). The part signal selected for processing is routed via the Effect Parameters Dry/Wet control (D/W) to determine the amount of effect applied (i.e. similar to the combination of the part VAR and DRY control in SYS mode). The proportion selected for processing is then fed via the Variation module and then to the output (note in this mode the Variation module Level and Pan controls are bypassed as these are controlled by the part settings).

Interestingly, inspecting the range of the PART control, reveals that up to 64 synth parts (P1 - P64) and 63 analogue parts (AD1 - AD63) are catered for within the XG format. Currently, the MU80 provide 32 synth parts and two Analogue parts......hence we can only assume that Yamaha have been very generous with the XG specs future expansion capability!

So what's the point of Insertion if it still only provides a single simultaneous effect?..........Well the benefit of this mode is that certain parameters of the effects unit may be controlled by an external midi controller (foot pedals, wheels, breath etc.). e.g. The Rotary Speaker effect provides for external control of the rotation speed (please refer to the XG effect tables for which parameters are controllable in this manner). Using XGedit, the assigned external controller and amount of control can be setup using a combination of the CTRL knob and CONTROLLER Popup menu.

8.2 *Effects Unit*

The synths effects unit is edited using the effects controls and Effect Parameters Module

8.2.1 Effect Popup Menu

The Effect Popup menu selects the effect type; Reverb, Chorus, Variation or Distortion.

XG *Distortion is only available as a separate Insertion effect on the MU80.*

8.2.2 Effect Controls

LEVEL	Overall effect return level	0 - 127
		(-∞dB - 0 - +6dB)
PAN	Overall effect pan position	L63 - 0 - R63
ToREV	Amount of effect sent to Reverb unit	0 - 127
ToCHR	Amount of effect sent to Chorus unit	0 - 127
CON	Connection setting for Variation, either Insertion to a single part or global to System (note you may need quite a large mouse movement to switch the control from one state to another….see the description for operating Knobs)	INS/SYS
PART	Selects the Part number when CON is set to INS	P1 - P63,AD1 - AD63 OFF
CTRL	Effect sensitivity to midi controller messages. Note the sensitivity setting applies to the currently selected controller in the CONTROLLER Popup menu.	0 - 127

8.3 Effect Parameters Module

This module provides editing of the currently selected effects parameters.

8.3.1 Effect Name List-box

Effect types may be quickly selected using the Effect Name Popup. Each name corresponds to one of the built in effect macros

Reverb	
NO EFFECT	Effect turned off.
HALL1	Reverb simulating the resonance of a hall.
HALL2	Reverb simulating the resonance of a hall.
ROOM1	Reverb simulating the resonance of a room.
ROOM2	Reverb simulating the resonance of a room.
ROOM3	Reverb simulating the resonance of a room.
STAGE1	Reverb appropriate for a solo instrument.
STAGE2	Reverb appropriate for a solo instrument.
PLATE	Reverb simulating a metal plate reverb unit.
WHITE ROOM	A unique short reverb with a bit of initial delay.
TUNNEL	Simulation of a tunnel space expanding to left and right.
BASEMENT	A bit of initial delay followed by reverb with a unique resonance
CANYON	Long cavernous reverb (MU80 Only)

Chorus	
NO EFFECT	Effect turned off.
CHORUS1	Conventional chorus program that adds natural spaciousness
CHORUS2	Conventional chorus program that adds natural spaciousness
CHORUS3	Conventional chorus program that adds natural spaciousness
CHORUS4	Chorus with stereo input. The pan setting specified for the Part will also apply to the effect sound. (Not available on MU80)
CELESTE1	A 3-phase LFO adds modulation and spaciousness to the sound
CELESTE2	A 3-phase LFO adds modulation and spaciousness to the sound
CELESTE3	A 3-phase LFO adds modulation and spaciousness to the sound
CELESTE4	Celeste with stereo input. The pan setting specified for the Part will also apply to the effect sound. (Not available on MU80)
FLANGER1	Adds a jet-aeroplane effect to the sound.
FLANGER2	Adds a jet-aeroplane effect to the sound.
FLANGER3	Adds a jet-aeroplane effect to the sound. (Not available on MU80)
SYMPHONIC	Exceptionally rich & deep chorusing
PHASER	Pronounce metallic modulation with periodic phase change (MU80 Only)

Variation	
NO EFFECT	Effect turned off.
HALL1	Reverb simulating the resonance of a hall.
HALL2	Reverb simulating the resonance of a hall.
ROOM1	Reverb simulating the resonance of a room.
ROOM2	Reverb simulating the resonance of a room.
ROOM3	Reverb simulating the resonance of a room.
STAGE1	Reverb appropriate for a solo instrument.
STAGE2	Reverb appropriate for a solo instrument.
PLATE	Reverb simulating a metal plate Reverb unit.
DELAY L,C,R	A program that creates three delay sounds; L, R, and C (centre).
DELAY L,R	A program that creates two delay sounds; L and R. Two feedback delays are provided
ECHO	Two delays (L and R) and independent feedback delays for L and R.
CROSS DELAY	A program that crosses the feedback of two delays.
EARLY REF1	An effect that produces only the early reflection component of reverb
EARLY REF2	An effect that produces only the early reflection component of reverb.
GATE REVERB	A simulation of gated reverb.
REVERSE GATE	A program that simulates gated reverb played backwards.
KARAOKE 1	A delay with feedback of the same types as used for Karaoke reverb.
KARAOKE 2	A delay with feedback of the same types as used for Karaoke reverb.
KARAOKE 3	A delay with feedback of the same types as used for Karaoke reverb.
CHORUS1	Conventional chorus program that adds natural spaciousness.
CHORUS2	Conventional chorus program that adds natural spaciousness
CHORUS3	Conventional chorus program that adds natural spaciousness
CHORUS4	Chorus with stereo input. (Not available on MU80)
CELESTE1	A 3-phase LFO adds modulation and spaciousness to the sound
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CELESTE4	Celeste with stereo input. (Not available on MU80)
FLANGER1	Adds a jet-aeroplane effect to the sound.
FLANGER2	Adds a jet-aeroplane effect to the sound.
FLANGER3	Adds a jet-aeroplane effect to the sound. (Not available on MU80)
SYMPHONIC	A multi-phase version of CELESTE.
ROTARY SPEAKER	A simulation of a rotary speaker. You can use AC1 (assignable controller) etc. to control the speed of rotation
TREMOLO	An effect that cyclically modulates the volume.

AUTO PAN	A program that cyclically moves that sound image to left and right, front and back
PHASER1	Cyclically changes the phase to add modulation to the sound
PHASER2	Phaser with stereo input. (Not available on MU80)
DISTORTION	Adds a sharp-edged distortion to the sound.
OVERDRIVE	Adds mild distortion to the sound.
AMP SIMULATOR	A simulation of a guitar amp.
3BAND EQ(MONO)	A mono EQ with adjustable LOW, MID, and HIGH equalising.
2BAND EQ(STEREO)	A stereo EQ with adjustable LOW and HIGH. Ideal for drum Parts
AUTO WAH(LFO)	Cyclically modulates the centre frequency of a wah filter. With an AC1 etc. this can function as a pedal wah.
PITCH CHANGE	Increases or decreases the pitch of incoming signals (MU80 & SW60 only)
AURAL EXCITER	Enhances the sound by giving greater definition, presence and clarity (MU80 only)
TOUCH WAH	Wah effect that varies filter sweep according to input level; also serves as pedal wah with AC1 (MU80 only)
TOUCH WAH + DIST	Same as touch Wah but with added distortion (MU80 only)
COMPRESSOR	Affects the dynamics of the sound by smoothing out high volume peaks and low volume dips (MU80 only)
NOISE GATE	Eliminates Noise or Hum in the signal (MU80 only)
THRU	Bypass without applying an effect.

DISTORTION	
(Only available as separate Insertion effect on MU80)	
THRU	Bypass without applying an effect.
DISTORTION	Adds a sharp-edged distortion to the sound.
OVERDRIVE	Adds mild distortion to the sound.
3BAND EQ(MONO)	A mono EQ with adjustable LOW, MID, and HIGH equalising.

8.3.2 Effect Parameter Controls

Each effect may be fine tuned using the effect parameter knobs.

For each macro, the controls will be updated to show their current assignment and value. Unused controls will be disabled (grey with no name)

Please refer to the XG midi data book for a complete list of effect parameters and ranges.

8.4 Controllers

The parts response to continuous controller messages is edited using the controller section of the Effects Module

8.4.1 Controller Selection

Controller selection is achieved using the controller Popup menu.

For standard controllers, select the required item from the Popup menu (Modulation, Pitchbend, Channel Aftertouch or Polyphonic Aftertouch).

For non standard controllers, first set Controller1 or Controller2 to the required controller value, then select Controller1 or Controller2 from the controller Popup menu.

The XG module will respond to all continuous controller messages from 0 to 95. However, only those controllers listed in the implementation chart have a 'built in' effect. All other controllers may only be used in combination with the Controller 1/2 module settings.

8.4.2 Controller Wheel

When altering the controller parameters, the module does not use the new value until it receives a message from the appropriate controller. This can be annoying, as the relevant controller must continually be adjusted in order to hear the affect of the edit. To overcome this, a controller wheel has been provided within the Control module.

The Control Wheel may be adjusted with the mouse to set the required controller position (note the wheel sends controller midi messages as per a standard synth based control wheel). If the LED below the wheel is ON, then any edits performed within the control module, will automatically re-transmit the current wheel position via a continuous controller midi message. In this way, all edits appear to be immediate and will affect the module sound in real time.

The wheel position may be different for each type of controller within the control list-box and for each part. However the wheel position is not saved to editor or midi files.

When selecting pitch bend the wheel behaves as a normal spring loaded self centring pitch wheel.

The wheel may be used for recording purposes, to send controllers not available on your keyboard.

8.4.3 General Controller Parameters

PITCH	adjusts how the controller affects the pitch of the current part	-24 - 0 - +24 except Pitchbend 0 - 24 semitones
AMP	adjusts how the controller affects the amplitude of the current part	-100 - 0 - +100%
TVF	Adjusts how the controller affects the Time Varying Filter of the current part	-9600 - 0 +9600 cents

8.4.4 Low Frequency Oscillator Parameters

The LFO settings work in combination with the current parts VIBRATO settings.

PMOD	Adjusts the depth of the pitch modulation induced by the LFO	0 - 127
AMOD	Adjusts the depth of the Time Varying Amplitude modulation induced by the LFO	0 - 127
FMOD	Adjusts the depth of the Time Varying Filter modulation induced by the LFO	0 - 127

9. Part & Drum Module

This module allows editing of the current part parameters or current drum edit buffer parameters. (Note the current part and drum edit buffer are selected using the Voice Box)

9.1 Part Edit Mode

9.1.1 General

The following general part parameters may be adjusted:-

VOLUME	Sets the volume of the current part in proportion to the units master volume	0 - 127
DETUNE	Allows tuning of the current part relative to the master tuning setting	-12.8 - 0 - +12.7Hz
KSHIFT	Key shifts the current part relative to the master KSHIFT setting	-24 - 0 - +24
PAN	Allows panning of the current part. Moving the knob fully anti-clockwise enables random (RND) panning each time a note is played	RND,-63L - 0 - 64R
SCALE TUNE	Allows microtuning of the part with respect to the chosen scale	C,C#,D,D#,E,F,F#, G,G#,A,A#,B -64 - 0 - +63 cents
ASSIGN	Changes the same note play assignment for the part	0 = single 1 = limited multi 2 = Full multi
PORTA	Portamento time adjustment. Note this is only active when the adjacent LED is green	0 - 127
B	A tellback dial showing current parts voice bank assignment	Non editable
P	A tellback dial showing current parts voice program assignment	Non editable

9.1.2 Keyboard Velocity

The part response to key velocity is controlled as follows:-

SENS	Velocity sensitivity, scales received value	0 - 64 - 127
OFFSET	Velocity Offset, offsets the received value	0 - 64 -127

Note: a value of 64 is equivalent to normal response.

9.1.3 Vibrato

The part vibrato parameters may be adjusted as follows:-

RATE	Adjust vibrato (LFO) rate	-63 - 0 - +63
DEPTH	Adjusts vibrato (LFO) depth	-63 - 0 - +63
DELAY	Adjust time delay before vibrato (LFO)	-63 - 0 - +63

9.1.4 Time Varying Filter

Adjusts the time varying filter characteristics applied to the part.

RES	Amount of resonance induced by filter	-63 - 0 - +63
CUTOFF	Cut off frequency of filter	-63 - 0 - +63

9.1.5 Effect Controls

REV	Adjusts the part Reverb send level	0 - 127
CHORUS	Adjust the part chorus send level	0 - 127
VAR	Adjust the part variation send level	0 - 127
DRY	Adjust the part dry send level	0 - 127

9.2 Drum Edit Mode

In this mode the Part Module allows editing of individual drum tone parameters

Drum editing is only available for parts set up for editable Rhythm use. Normally only part 10, is used for rhythm, although any part or number of parts may be used. However it is important to realise that, *no matter how many parts are selected for rhythm use, there can only be two (four on MU80) editable drum kits active (DRUMS1...DRUMS3).* Care should be taken when selecting a new editable drum kit using the Voice Box. Selecting a drum kit other than those already in use, will cause all parts using the corresponding drum buffer to change. *Furthermore all editing will be lost for that drum buffer.*

XG   *Rhythm parts set to STD DRUM are non editable.*

9.2.1 Enabling Drum Editing

To enable drum editing :-

1. Using the Voice Box, switch to a part configured for rhythm use. If no parts are currently configured for rhythm, use the Voice Box to change a part to voice bank DRUMS1...DRUMS3. The Drum Key name should then become enabled

2. Single click with the mouse on the Drum Key Name (the control that reads *NO DRUM KEY*)

3. The Part edit controls will now change to Drum edit controls and the Keyboard will change to highlight a single key. Additionally, the LCD Panel display AMP EG mode will now show the appropriate drum tone amplitude envelope

4. If a drum tone is mapped to the current key, its name will be highlighted in the Drum Key Name control. Otherwise the control will show *NO DRUM KEY*

5. To change drum tones press and hold the command key down whilst clicking on the on-screen keyboard with the mouse . Moving the mouse left/right will highlight the key under the mouse. (alternaively press the coressponding key on your midi keyboard). The drum edit controls will automatically update to show the corresponding key parameters

XG *Drum tones can be auditioned from the on screen Keyboard using the mouse button as per normal voice play.*

9.2.2 Drum Parameters

The part module provides similar editing of drum parameters to those in part edit mode The following additional parameters are also available:-

ALTGRP	Selects the exclusive group to which the tone belongs. Playing a note within an exclusive group automatically turns off sounds from any other members of the group. Normally used for cymbal effects.	0 = no group, 1 - 127
K.ON	Enables drum key response to note on messages. Disabling this effectively removes the drum tone from the kit.	Enable/Disable (0 -1)
K.OFF	Enables drum key response to note off messages. Disabling this allows the drum to sound and decay naturally after the key is released	Enable/Disable (0 - 1)

10. Enables Module

This module provides a group of LED's to select the midi messages received by the current part.

To enable or disable a message left click on the appropriate LED

10.1 Message Enables

The messages affected are:-

PB	Pitch Bend controller messages
CHP	Channel pressure controller messages (CAf)
PRO	Program change messages
CC	General controller change messages not include above
PP	Polyphonic pressure controller messages (PAf)
NO	Note On/Off messages
RPN	Registered Parameter Number messages. Note if disabled SYSEX mode must be selected for editing the part.
NRPN	XG Non Registered Parameter Number messages. Note if disabled SYSEX mode must be selected for editing the part.
MOD	Modulation controller messages.
VOL	Volume controller messages
PAN	Pan controller messages
EXP	Expression pedal messages
SUS	Sustain pedal
PORT	Portamento controller messages
SOS	Sostenuto pedal messages
SOFT	Soft pedal messages
BS	Bank Select
M/P	Monophonic/Polyphonic mode selection messages (enabled = Poly)

XG   *The NO(te) enable may be used to mute a part.*

11. Keyboard

The Keyboard is primarily used to define the input key range for a part. This is useful if you wish to produce a performance setting incorporating multiple layers. The keyboard is also used for auditioning sounds and selecting drum tones in Drum Edit mode (see Part Module)

Performance - a setup used when playing live. Avoid having to play multiple keyboards by splitting one keyboard between several sounds. e.g. bottom octave of keyboard configured for bass on midi channel 1, mid range configured for Piano on channel 1 and top range configured for strings on channel 1.

11.1 Selecting Key Ranges

The keyboard indicates graphically the full range over which the synth can respond. Middle C is marked by a green dot. To select the playable range for the current part, click on the keyboard whilst holding the Command key down. Move the mouse to highlight the key range you require.

XG *If you click near the left hand side, the lower boundary will be updated, Clicking near the right will change the upper boundary.*

11.2 Auditioning Sounds

If a midi out device is enabled the keyboard may be used to play notes on the current part. To play a note click on the keyboard. Holding the mouse button down and dragging across the keyboard will play a glissando of notes.

XG *If a layered performance Setup has been created the keyboard provides an excellent way of auditioning the splits.*

11.3 Velocity Limit

These two dials set the high and low cut-off values for the current parts key velocity response.

XG *The value set for the velocity high cut-off is used for the note velocity of all sounds played from the on screen keyboard.*

12. Voice Box

The Voice box is used to select the current active part and provide an overview of the Synth Setup.

12.1 Part Selection

Part selection is achieved using the *radio button* array on the left of the Voice Box or clicking on the parts assigned voice in the list box.

To select a part for editing click on the associated button. The selected parts LED will be illuminated (Green) and the parts assigned voice will be highlighted.

Alternatively single click in the voice box on the parts assigned voice.

12.2 Midi Channel Selection

The first column of dials to the right of the part buttons allow the parts assigned midi channel to be altered. To change a parts midi channel, click and hold the mouse button down on the appropriate dial. Moving the mouse up will increment/decrement the channel accordingly.

Channels 1 through 16 may be selected. A value of NO indicates that no channel is assigned to that part (effectively disabling the part). If operating in dual module mode (MU80), a '+' in front of the channel number indicates the part is assigned to port B.

> *You may change the midi channel, and element reserve assignment of any part (not just the currently selected part)*

> *Changing a parts midi channel will cause all thru data to be re-channellised to that channel. (a value of NO, indicates that no re-channellisation will be performed)*

> *Multiple parts may be assigned to the same channel. However, if GM mode is used, the changes will affect all parts on the same channel.*

12.3 Element Reserves

The number of elements reserved for a part is shown in the dial to the right of the midi channel.

The number of elements indicates the number of tone generators reserved for the part. During a complex multi part piece the synth may run out of available tone generators. However assigning an element reserve to a part, guarantees that the part will always receive that number tone generators. If the part does not

require the number of generators assigned, they are released back to the pool for use by other parts.

Note that the number of elements is not equivalent to the number of notes that can be simultaneously played, as some sounds require more than one tone generator per note.

The total number of elements remaining to be assigned is indicated at the bottom of the element dial column. (a value of 0 indicates that all generators have been assigned). In dual module mode (MU80) the dial indicates the number of elements available to the current Port.

To change the number of elements assigned to a part operate the dial as described for the midi channel dial above.

XG *The dials will never allow you to assign more than 32 (64 MU80) elements in total.*

12.4 Selecting Voices

The Voice selection list provides an overview of the currently assigned voices and allows access to the floating voice selection window.

12.4.1 Voice Overview

The voice selection assigned to each part is shown in the list box. In addition, the bank allocation for the current edit part is shown at the bottom. (Bank and Patch number for the current part are shown in the Part Module grey tellback dials labelled B and P)

The list may be used to select the current edit part in the same manner as the part buttons. To change the selection, click on the voice name corresponding to the desired part.

To change the voice allocated to a part **Double click** on the corresponding parts voice within the list. The floating Voice Selection Window will automatically appear/update to show the available voices in the parts currently assigned bank

12.4.2 Voice Select Window

The voice select window consists of three areas:-

Voice Table

The voice table shows the complete set of currently defined XG voices, in their correct relationships. Where no defined voice exists in the table, the appropriate

fallback voice is shown in grey. Such voices may be selected, but the user should be aware that future XG modules may assign variation tones to these programs.

Clicking on a voice automatically highlights and assigns that voice to the current edit part. Note that selections are immediately available for auditioning. Furthermore the voice list may be left in voice select mode whilst other edits are performed. (If the part buttons are used to select a new edit part whilst the list is in Voice Select Mode, then the table will update to reflect the new parts assignment).

The voice table may be resized or completely hidden by resizing the Voice Select window.

Double clicking on a voice or selecting the Hide button will dismiss the Voice Select Window.

XG *Only those banks currently defined in the XG data book are available.*

XG *Those voices only available on the MU80 are indicated in red. These voices will not be displayed in MU50/MU10/DB50/SW60 or Level 1 mode*

Voice Menus

As an alternate mechanism for voice selection, two voice Popup menus are provided.

Bank - Allows voices to be selected on a bank basis using a hierarchical menu.

Variation - Allows voices to be selected based on program number (i.e. voices with the same program number are normally variations of the capital GM tone).

These two menus are useful for quickly experimenting with voices of a similar sound.

Note if a voice is selected from the Voice table which is currently undefined, then the Bank menu will reflect the appropriate bank number, but the Variation menu will show *UNASSIGNED.*

Drum List

To change a parts allocation to Rhythm use, select the appropriate program in the drum list.

The LED's at the bottom of the Drum List allow different drum edit buffers or the non editable STD DRUM buffer to be selected. If the assigned drum buffer is changed, the drum list will update to show the current kit assigned to that buffer.

The user should bare in mind that changing a kit allocated to a drum buffer (except STD DRUM) will cause the kit to change on all parts that use that buffer.

Double clicking on the selected drum kit will dismiss the Voice Select window.

13. Menus

The following Menu commands are available:-

13.1 File Menu

13.1.1 Open Editor File

Retrieves a previously saved editor file from disk and transmits the information to the attached XG module.

*. XGE	All edit parameters retrieved
*. XGP	A single parts parameters are retrieved to the current Part
*. XGD	A single rhythm part and associated Drum Edit Buffer parameters are retrieved to the current part

Note that transmission of the retrieved data may be aborted using the Command Period key combination.

13.1.2 Merge Midi

Allows a standard midi file to be merged into the XGedit Setup, for playback auditioning and saving with the current Setup. See the Section "Merging Midi Data" for further details.

13.1.3 Clear Midi

Clears any merged midi song data from the editor. This is important as the Midi file saves, will output both the current edits and any song data previously loaded. Hence if you are only interested in the edits, you should first clear the Midi memory using this menu option.

13.1.4 Save

Registered Version Only - Saves the current editor setup to disk.

Depending on the save file extension the following information will be saved:-

*.XGE	All edit parameters (default)
*.XGP	Current Part parameters only
*.XGD	Current Part and Drum Edit Buffer parameters. Note if the current part is not assigned to an editable drum buffer (DRUMS1 - DRUMS3) then the save operation will be aborted
MIDI	Saves all edit parameters and any merged midi data to a standard midi file. Midi file content is determined by the state of the Master Module controls. See the section on "Working With Midi Files" for further details
SYX	All edit data is saved in MIDIEX format. This consists of a series of concatenated System exclusive bulk dumps. This format may be used with popular editor/librarians or sequencers such as the PC based Cakewalk.

13.1.5 Quit

Quits the program - if there are any unsaved edits you will be prompted to save, discard or cancel the exit.

13.2 Setup Menu

13.2.1 Studio Setup

Provides access to the standard OMS/FreeMidi studio setup dialog. Refer to the OMS/FreeMidi documentation for details.

13.2.2 Interface Setup

Provides access to the standard OMS/FreeMidi midi interface setup dialog. Refer to the OMS/FreeMidi documentation for details.

13.2.3 Midi Port Setup

Allows selection of the Midi System (OMS or FreeMidi) and the midi ports to be used by XGedit.

XG *The selected Midi System will be stored in the XGEDIT Prefs file for use in future sessions.*

XG *The selected ports will be stored in the XGEDIT Prefs file for use in future sessions.*

XG *Note if using multiple midi output ports (with an MU80), Midi Output A should always be connected to and directed at port A of the MU80.*

13.2.4 Select Synth

Allows the editor to be swapped between the MU80, MU10, MU50, DB50XG, SW60XG and XGLevel 1modes of operation.

XG *This action will also perform an XG reset of the attached synth.*

XG *The state will be saved in the XGEDIT Prefs file for use in future sessions.*

13.2.5 Reverse Dial Action

Allows the knob/dial vertical action to be reversed, such that the controls behave like conventional faders

XG *The state will be saved in the XGEDIT Prefs file for use in future sessions.*

13.2.6 Register

If you like this program and continue to use it you are obliged to register it (See the Registration section for details)

13.3 Utils Menu

13.3.1 Refresh Synth

This option will re-transmit the current parameters contained within the editor. This may be useful if a sequenced midi file has changed the contents of the Synth.

You can abort the refresh using the Command Period key combination.

13.3.2 Reset All

This option will perform a global reset of the attached synth module. Note all edits will be lost (including Performance buffers in the MU80)

13.4 Apple Menu - About XGedit MAC

Provides access to the About dialog containing Version details and Registration status.

14. Working With Midi Files

14.1 Introduction

Your XG synth is a superb instrument, designed to offer a large variety of high quality tonal sounds, supplemented by multiple drum kits, special effects banks and a versatile effects unit. However the real benefit of the XG format is the expressive control that can be applied to these elements……offering the sort of performance that was until now only available on machines far beyond the budget of most musicians.

Unfortunately in order to access this wealth of functionality and expression requires the use of complicated controller and system exclusive commands.

XGedit is designed to hide this complex midi notation from the user and in place provide an intuitive analogue control interface which it is hoped the musician will find significantly more friendly and thus productive.

Furthermore, the most important factor considered when producing the editor, was to deliver this functionality in real-time i.e. when you perform edits, they are applied in real-time (much the same as they would be from a control wheel or knob on a real synth front panel). Unfortunately standard MACOS controls don't work this way......they only send a value when the control is released. Hence if you move a slider on a conventional editor it only sends the final position value (and not the values in between). What this means, is that if you use a conventional editor then you won't get smooth transitional effects and may have to make do with non optimal settings.

XGedit has been written to overcome these problems, allowing you to hear the transitional changes as the controls are moved, and thus allowing you to get exactly the effect you're after. Furthermore, if the control edits are recorded in real-time they can be used as dynamic effects throughout the body of a song (whooshing filters, wha..wha, LFO ramps)

However all of this functionality is of little use if the user cannot utilise the results in their midi projects.

To this end the following sections describes how best to utilise the editor during the authoring process

14.2 Setting Up Your Midi System

Please refer to the Opcode Open Music System (OMS) or Mark Of The Unicorn FreeMidi documentation for setting up your MAC studio interfaces.

It is recommended that for most editing XGedit is used in parallel with your favourite sequencer. In addition XGedit may be used for real-time recording using the Inter Application midi facilities of OMS and FreeMidi.

14.3 The Authoring Process

XGedit is designed to be used throughout the authoring of a Midi project. However it must be realised that it is a specialised editing tool; it does not provides capabilities for note entry, recording, arranging etc and therefore is not designed to replace your existing sequencing software.

Consequently the midi author should be prepared to operate both XGedit and their sequencer in parallel. To this end it is recommended that a large monitor is used and that your MAC is configured to run at a screen resolution of 800 x 600 (or above) utilising at least 256 colours.

The midi author should also be familiar with how the Macintosh GUI system operates; particularly with respect to running multiple programs and switching rapidly between them.

For information on setting up your system for multiple midi applications see the OMS and FreeMidi documentation

Suggested authoring steps are outlined in the following sections:-

14.3.1 Compose Your Midi File

XGedit does **not** provide facilities for note editing or arranging. Hence midi file composition will require the use of a separate sequencer program such as Cubase. However for optimum flexibility the user should configure their system to allow both XGedit and a sequencer to run simultaneously and both access the Macs midi ports.

The above configuration allows a first pass at instrument voicing to be performed during the song composition. This has the advantage that all voice editing information is held separately in XGedit where it may be quickly modified, rather than embedded within the musical data of your sequencer.

(Of course you may wish to rely solely on your sequencers capabilities at this stage. If so please ensure that any patch/controller information inserted by your sequencer can be correctly exported to a standard midi file for later interpretation

---

Before starting your composition, take some time to think carefully about its structure and your target audience. The following points may prove helpful when planning your songs layout:-

XG   XG compatibility - XG is designed as an extensible format, consequently you will find that not all XG synths provide all XG features. However there is a defined level 1 format of XG features that are guaranteed to be present in all XG synths. If you intend your composition to be performed correctly on all XG instruments then you should restrict yourself to this subset of features. This is best achieved by configuring XGedit for XG Level 1 use (see the **Select Synth** menu item).

XG   Resolution - the author should be aware that the order of some events is important (particularly controller changes such as Bank select, Program Change, Continuous Controllers and RPN/NRPN). If such events are placed at the same 'midi tick' within a song, their ordering may not be guaranteed when replayed on different sequencers. To ensure that this does not cause problems the author should make sure that such events are correctly ordered and separated by at least an interval of 1/480 (i.e. one high resolution midi tick). Continuous controller data should also be thinned to intervals of 5/480 to avoid tempo instabilities.

XG   Tempo - tempo should be kept within the range 32 - 250 bpm

XG   Setup Bars - You should leave a couple of bars before the first note event of a song, to allow for the insertion of setup data (See **Setup Bar**). If you intend to process the file via XGedit, these bars are not necessary as XGedit will insert them for you. However it is always good practice to start with as you may wish to enter some initialisation data within your sequencer.

XG   Voice changes - In the final song the setup bar will contain all the parameters necessary to configure the synth (including any specially edited voices). If you wish to change the voice assignment of a musical track during the body of a it is best to do this by assigning the new voice to a separate synth part. In this way the new voice may be configured in the initialisation setup bar, rather than sending a mass of data during the body of song.

XGEDIT

Polyphony - basic XG synths provide 32 note polyphony shared across 16 midi channels. The polyphony refers to the number of simultaneous tone generators (or elements) available. The user should be aware that this does not imply an equivalent number of simultaneous notes, as some sounds require more than one element (refer to the XG manual for the number of elements required by each sounds). The user should bear this in mind when creating a complex song; if too many simultaneous notes are used the listener may perceive "dropped" or "clipped" notes. However, the XG format provides an element assign prioritisation scheme (see **Voice Box**). To make the most of this feature, the user should structure their song such that the most important notes are given the highest priority i.e. by assigning the most important tracks to the lower synths parts (if the default midi channel assignment of each synth part is left unaltered then synth parts correspond to midi channels). The suggested allocations are given below. Additionally, the user may wish to adjust the element reserves of particular parts to guarantee that they always receive the required number of elements.

Track	Part (MIDI Channel)	Comment
Rhythm	10	Dedicated Rhythm part
Melody	1	Main melody line
Sub Melody/ solo/ accompaniment	2	solo part or important backing
Bass	3	Bass part
Pad	4	backing part with mostly sustained notes
Riff	5	rhythmic backing

Once you have planned your song you may wish to switch to XGedit and assign the initial voices to each track. To do this make a note of the track to midi channel allocations within the sequencer. Then within XGedit assign the required voices to the synth parts on the corresponding midi channels. At this stage only worry about getting the basic sounds correct (further refinement of the voice character and overall mix can be performed later when you have some music to work with).

Having completed the voice assignment you may now start recording midi data using the features of your sequencer.

After recording each track you may wish to set the song playing in a loop and switch back to XGedit to perform some voice refinement.

REMEMBER TO SAVE YOUR WORK REGULARLY FROM BOTH XGEDIT AND YOUR SEQUENCER.

14.3.2 Edit The Sounds

Once you have recorded one or more tracks of your song you will want to perform some more thorough voice editing. The best way to do this is using the dual program configuration with the song playing from the sequencer in an endless loop.

Alternatively you may wish to use the built in midi file play capability of XGedit (although this is likely to be much less flexible than your sequencers capabilities)

With the song playing you should adjust the XGedit controls such that you hear all edits in real time. This provides greater feedback of how the edits affect the sounds within an overall mix context and is much better than attempting to edit an individual voice played solo.

If you do wish to mute certain voices, then use the NOte enable LED within the Enables module. Always remember to re-enable any voices muted in this manner before returning to your sequencer.

The following is **my** preferred procedure for editing an overall voice mix:-

XG Start by assigning basic (GM) voices to each track/part

XG Where the basic voice is unsatisfactory, try voices from the corresponding patch number in the higher XG banks (use the Voice Variation Popup menu to quickly experiment).

XG Where a voice is still unsatisfactory perform some editing:-

> **XG** Using the Part Filter parameters RES and CUTOFF have the greatest impact on a voices character
>
> **XG** Using Part AMP EG parameters together with V.SEN and V.OFF have the greatest effect on a voices dynamics.
>
> **XG** Only use other Part parameters where special voice effects are required e.g. vibrato or detuning.

XG Adjust part volume levels to balance the overall mix (this is best achieved using the overview bars of the central display panel)

XG Adjust the Part pan positions to give the song a feeling of space (again this is best performed from the central display panel).

XG Adjust the Reverb and Chorus effect unit settings in combination with the Part REV and CHOR controls to give the song a feeling of ambience. (Note you should first determine the basic effect required and then perform fine tuning using the effect parameters)

XG Use Variation effect settings to further alter ambience or add special effects to particular parts (note you should use Variation is SYStem mode unless you later wish to perform real time changes to the effect character using controller messages - see **Understanding The Effect Unit**

XG *Note you can always return a parameter highlighted in yellow to its default setting by double clicking on the control*

REMEMBER TO SAVE YOUR WORK REGULARLY FROM XGEDIT AS A .XGE FILE

14.3.3 Add Dynamics

Once you have recorded your song tracks and edited the sounds to your liking, you may consider adding some real-time dynamic edits. e.g. filter sweeps, crescendos, drum tunings etc.

There are several possible ways to add such effects:-

Sequencer

Use the facilities of your sequencer to add the relevant controller/Sysex messages. This can be tedious and depends greatly on the capabilities of your sequencer. Hence this will not be discussed further here.

External Controllers

Use XGedit to set up external midi controllers such that you can record dynamics using your external equipment (e.g. Mod/Pitch Wheels, Breath Controller, Foot Pedals). See **Controllers**

Record XGedit output directly to your Sequencer

Record the Output of XGedit in real-time to your sequencer. This can be

achieved by setting up your midi system to use Inter Application midi.

Using Inter Application midi can be very powerful, but care should be taken to follow the guidelines described below:-

XG Where possible use XGedit in Controller Output mode (General Midi button down).

XGedit normally transmits edits as a series of System Exclusive Parameter Change messages. These are capable of editing every parameter within the XG synth, but their format is relatively bulky and not all Sequencers can handle them in real-time. Consequently wherever possible midi controller messages should be used. These are much shorter to transmit and are guaranteed to work with almost all sequencers.

XG Avoid excessive amounts of data

Whether you choose to use XGedit in Sysex or Controller mode, you should avoid recording excessive amounts of edit data to the body of your song. If too much data is present the sequence may suffer from timing instabilities during playback (particularly on slower machines). Consequently after recording it is always good practice to utilise your sequencers editing capabilities to remove duplicates and thin out the number of messages. (Note the XG specification recommends a spacing of at least 5/480 between each controller event)

XG Check for multiple events on the same midi channel and midi tick

When using dynamic controller events you should always check that each midi event occurs on a separate midi tick (this is particularly true where RPN/NRPN controllers are used). The ordering of events on the same midi tick value cannot be guaranteed across all sequencers. Hence to ensure correct ordering you should separate each event onto a different tick (the XG specification recommends a minimum separation of 1/480)

XG Avoid using Macro parameters

Macro parameters are those edits which effect multiple parameters within the synth as follows:-

Effect Program changes

Voice/Bank program changes

Equalisation program changes

These parameters alter several settings within the synth and consequently take a significant amount of time to process. If normal note events arrive at the same time, the synth may not process them, resulting in lost notes, or unpredictable behaviour.

If you must use these parameters, either position them within the setup bar (where no note events are present) or utilise them during gaps in the music i.e. think ahead.

XG Record Dynamics to a separate track within your sequencer

In order to assist later editing (and thinning of controller data) you should record all dynamics to a separate track within your sequencer. However please ensure that the tracks midi channel is assigned to the same value as the Part you are editing. Although this is not important for Sysex commands, it is important for controller messages as they may be re-channellised by your sequencer.

14.3.4 Save The Setup Bar To The Midi File

Up until now you have been working with the majority of voice edits being held within XGedit and the dynamic song data being held within your sequencer. Before you can distribute your midi file you must first combine the two.

There are two ways to perform this operation; either merge the data within your sequencer or merge the data within XGedit. However before you decide on which operation to perform, you should first decide on what format the XGedit setup data should be stored (see **Saving Midi Data**)

Merging Within a Sequencer

This method involves saving the XGedit setup data in a format that can be imported by your sequencer and then manually splicing this into the song data. This method can be a little tricky but provides the user with the greatest control over where the data is placed. Please refer to your sequencer user guide for performing midi merge/cut/paste operations.

Note XGedit saves setup bar data with the correct timing intervals between events. Wherever possible this timing should not be altered by the merge process. In addition the XG specification states that a period of 200ms should be left between the setup data and the first note on event of a song.

Merging Within XGedit

This is a simple operation and should provide the best results. The operation is described in **Merging Midi Data** . The user should pay particular attention to

which midi events will be stripped from the file in case they need to be replaced later. In addition the user should always make a back up of the file prior to merging or save the final merged output to a different filename

(XGedit is not infallible and the Author cannot be held responsible for the loss of your masterpiece should XGedit decide to eat it).

Note it is always advisable to keep separate copies of the midi song data in your sequencers native file format and the XGedit setup data in .XGE format. This way, should you wish to perform some further refinements at a later date, the two programs can be reloaded and the editing session continued from where you left off.

14.4 Merging Midi Data

The XGedit Midi Merge feature is NOT a simple midi file load operation, but a true *merge* operation. It is designed primarily for splicing together edit data held within XGedit and song data from your sequencer. During file load, all midi events contained within the files **Setup Bar** are interpreted and/or discarded from the file. This allows XGedit to merge and display the file based edits together with those already resident in the editor. The combined Setup Bar of the file and editor based events are then formatted with respect to the midi song data and used for later Midi File save operations.

Setup Bar

In order for a synthesiser to correctly play back a midi song, the file must contain both synth setup data (Reset commands, voice selections, parameter edits) and midi note/controller data. In general the synth setup data requires larger midi packets than normal note events and thus takes longer to transmit and process. Consequently it is customary to store such events at the start of a song prior to any note events such that any timing instabilities or mode changes associated with the data do not present audible problems within the song. This collection of initialisation data at the start of the song is known as the Setup Bar

For the purposes of processing within XGedit the Setup Bar is defined as containing all events from the start of the file up to but excluding the first note on/off event.

XG   *If you wish to use the Merge feature purely for auditioning XG midi files and/or investigating their embedded edit data, then you should always perform an XG reset using the XG button, prior to loading the file. This will ensure that the editor and synth are reset to their defaults prior to loading the file data. Thereafter any edits displayed will consist purely of those contained within the midi file.*

The File | Merge Midi menu item performs the following:-

XG **Provides Midi Input File Selection**

A standard file select dialog box is opened allowing the user to select the Midi input file. The file must have a type of MIDI and must contain either a type 0 or type 1 header with associated midi track data.

XG **Data Loading and Setup Bar interpretation**

On closing the file select dialog, the midi file data is loaded into XGedit for processing. The processing consists of interpreting all setup bar data contained within the file. For the purposes of this processing, Setup Bar data is considered to consist of all midi events prior to the first note on event of the song.

XGedit interprets the data listed below. Where relevant an events midi channel is used to determine which synth part(s) to update. *Since there is no way of determining midi port from a standard midi file, XGedit cannot update parts 17 to 32 of the MU80 unless they are also assigned to the first midi port.*

- Header information (used to determine output midi save format)

- Tempo/Timebase (used to determine playback/event storage timing and saved to output files)

- Time Signature/Key Signature/SMTE offset (saved to output file and used to realign midi data after appending setup bar)

- Copyright notice (preserved and saved to output file)

- XG System Exclusive Bulk Dumps (interpreted and used to update display)

- XG System Exclusive Parameter Change (interpreted and used to update display)

- Patch Change/Bank Select (interpreted and used to update display)

- Relevant Continuous Controller messages including RPN/NRPN (interpreted and used to update display)

- Note On/off (first event used to signify end of setup bar)

XG Setup Bar stripping

The data interpreted above is stripped from the midi file and stored for use when saving out files.

Any other data that lies within the setup bar and is not interpreted is discarded; this includes text events, markers, pitch bend, modulation and Aftertouch controller data, any unrecognised Sysex (including SW60XG mixer or other manufacturers messges e.g. GS) and all channel mode messages

Any tracks left empty after setup data stripping are discarded

All data after and including the first note on/off event is preserved and used for saving out midi files. Hence any data that would normally be stripped by XGedit that you wish to retain should be placed after the first note on event of the song (this may be a dummy note with zero volume)

XG Display Update and Synth Refresh

The interpreted data is used to update the status of the editor and refresh the attached synth (such that the editor and synth remain consistent). Any parameters contained within the merged midi file override existing parameters in the editor; all other editor parameters remain intact

XG Midi File save/play preparation

The loaded midi song data is prepared for playing using XGedits midi play feature and processed ready for output to midi file

Problem Files

It should be noted that under certain circumstances XGedit will not show all setup data contained within a loaded file and/or may not correctly play a midi file. This is usually an indication that the file deviates from the XG Midi File Authoring Guidelines. Some common errors are described below:-

1) The file is badly structured

    If the file contains setup data interspersed with note events XGedit will stop reading data after the first note event. Hence the majority of edits may not be visible.

2) The file is not XG

    Many midi files will have been written for the GS format and contain a GS reset command. In this case the XG synth would normally switch to TG300B mode before playing the file. XGedit does not interpret GS commands and will therefore discard GS related events from the file, thus preventing the synth from switching to TG300B mode. Any remaining GM/XG events will be interpreted but this will not provide optimal playback of the file (in particular GS bank selections are different to XG and therefore correct voicing is unlikely)

3) The XG file was written for a different XG synth

    Some XG synths provide additional features, voices and effects. If XGedit is in a synth mode which does not support these features, then their associated edits may not be correctly displayed (XGedit will attempt to mimic the fallback features of the selected synth).

    It should also be noted that the default setup of all XG synths is NOT the same. (In particular the MU80 defaults for Element Reserves, Effect Parameters and Drum kits are slightly different to those of the MU50/DB50/SW60. Consequently if you load a midi file containing an MU80 bulk dump into XGedit in MU50 mode, you will notice a larger number of edits than shown for XGedit in MU80 mode).

4) Ambiguous Controller Events

    If the file contains multiple Controller events positioned on the same midi tick, their ordering cannot be guaranteed across all sequencers. Additionally XGedit may misinterpret their assignments (particularly with respect to RPN/NRPN controllers and Data Entry). All controller events should be spaced at 1/480.

    If the author utilises controller events which assume prior initialisation, then XGedit may not interpret the events correctly (e.g. Omitting Bank Select MSB/LSB prior to a Program change message). All such controller events should therefore be expressed implicitly and in the correct time order.

14.5 Saving Midi Data

The *registered* version of XGedit allows edited data to be saved to MIDIEX files (.SYX) or standard Midi files (.MID) in addition to normal editor Native saves

MIDIEX files contain raw system exclusive bulks dumps and may be imported into popular sequencers and librarians such as Cakewalk.

Standard Midi files are more useful and can be read by almost all sequencers. To save .MID files the user should select Midi from the Save As dialog box.

The contents of the saved midi file are determined by the settings of the **Master Module**

14.5.1 Saving Merged Midi Data

If the user has merged a midi file into XGedit, then the saved midi file will also contain the merged song data. The setup data will be saved to the first few bars and assigned to the appropriate song tracks (based on midi channel number). The song data will be repositioned with respect to the setup data such that a gap of at least 200ms is left between end of setup and the first note on event (as recommended in the XG authoring guidelines).

The user should refer to **Merging Midi Data** for which events will have been stripped from the merged midi file.

If the user does not wish to include the merged midi file data, then the File | Clear Midi menu item should be clicked prior to saving. This will erase any merged midi song data from the editor but will not affect any extracted setup data.

14.6 Using Native Save Formats

14.6.1 Save Formats and Extensions

XGedit provides three native save as follows:

XGE	Saves the entire contents of the editor
XGP	Saves the parameters associated with the current edit part
XGD	Saves the parameters associated with the current edit drum part

XG *PC Versions of XGedit prior to V2.0 utilised the extensions .ALL, .PRT and .DRM. However, to avoid confusion with files generated by Cubase, these file types have now been renamed to those shown above: XGedit V2.0 is fully backward compatible with older file save formats and will load files with the old extensions correctly either MAC or PC based*

File saving is achieved using the File | Save Editor File As menu item. This brings up a standard file select dialog box where the user may enter the desired file name. It should be noted that the type of save operation is determined from the dialog file type menu.

14.6.2 Useful Operations

Since so much of a voices character is governed by the global effect unit settings, there is little point in constructing a library of individual part (.PRT) settings. Consequently, the user is encouraged to **always** use the global XGE format when saving the editor setup.

However there are circumstances where the alternative formats can prove useful.

Part Copy

The XGP format is useful if the users wishes to copy one parts setup to another. To do this the user selects the desired source part (using the voice box part buttons) and performs an XGP save. The user then selects the desired destination part and performs an XGP load. Note that the XGP file contains the source parts midi channel. Hence the user may wish to adjust the midi channel of the copied part after loading.

Drum Kits

Performing drum kit edits can be very time consuming hence it is always worth saving edited kits using the .DRM format. Note that DRM saves also store the

associated .PRT data and therefore may be used for copying kits as described
for parts above.

15. Registration

15.1 General

If you intend to use XGedit beyond the 21 day evaluation period you must register the software.

Registered users will receive a registration password to enable the program **SAVE** functions and may contact the author for technical support.

15.2 To Register

A fee of 25.00 UK pounds *(plus handling charge)* is payable for each copy of XGedit you require.

15.2.1 CompuServe

CompuServe users may GO SWREG and follow the on screen instructions. (The CIS SWREG ID is provided in the ReadMe file). The registration fee together with a handling charge of 4.50 UK Pounds will be charged to your CompuServe billing account. Your registration password will be provided by Email.

15.2.2 By Postal Mail

Please complete the registration form provided at the end of this file.

Important - the following terms apply to postal registrations:-

Where possible payment **should be** in UK funds drawn on a UK bank or UK branch of a non-UK bank OR in the form of a Eurocheque.

A Personal Cheque from Non UK banks will be accepted provided the cheque is made payable in the **currency of origin** and the handling charge equivalent to 5.00 UK Pounds is included.

Personal cheques, bank cheques or money orders are accepted. Credit cards are not accepted. Cash is accepted, however, I can not accept responsibility of funds lost in the mail. If cash is sent, the purchaser agrees to accept all risks of loss.

If you are ordering a large quantity of this program, please contact the author for information regarding site/distributor license agreements, special bulk order prices etc..

You will receive your personal registration password by return of post (please allow up to 48 days).

15.2.3 By Distributor

Please visit my Internet Web Site for details of authorised distributors (most of whom will accept credit card orders).

If you would like to become a distributor of XGedit or any of my other products please contact me via one of the means below.

15.3 To Contact the Author:

Postal Mail: **Mr. G.Gregson**
                 'Mumbles', Green Road
                 Wivelsfield Green, West Sussex, RH17 7QL
                 ENGLAND

Email: **ggregson@compuserve.com**

Web Site: **http://www.cybertheque.fr/galerie/GGregson**

                 (note this URL is case sensitive)

Thank You!

XGeditMAC Registration Form

Note: Please print out this form and enter all details clearly

<div align="right">

To: Mr. G.Gregson
'Mumbles', Green Road
Wivelsfield Green, West Sussex, RH17 7QL
ENGLAND

</div>

Name …………..………………..……………………………………………………………

Company …………………………..…..…………………………………………………………

Address 1 …………………………..……………………………………………………………

Address 2 …………………………..……………………………………………………………

City ………………..……………..…… State/Province ………………………………

Zip/Postal Code ………………………..………..…… Country ………………………………

E-mail Address …………………………………..…… Date …..……………………………
…………………………………..

Obtained From …………………………..……………………………………………………………

Description:	**Price Each**	**Quan**	**Net**
XGedit For MAC Registration Password	UK 25.00	……….	…………..
Shipping/Handling Charge (GB = UK 1.00: Other countries = UK 3.00)	*See Left*		…………..
Options - Add to Registration Price		
Latest copy on disk (If needed - quantity limited to registration quantity only).	UK 5.00	…………	…………..
Additional Bank handling fee (For payments by Non UK/Eurocheque funds only)	UK 5.00		…………..
Total (In UK Pounds)			…………..
State conversion rate and total in currency of country of origin (If payment by Non UK/Eurocheque)		x ………	=…………
Payment Method: Cheque # …………..		Other	…………..

Receipt Required   YES/NO*   *delete as applicable*

Comments/Suggestions/Bugs……………………………………………………………………
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