

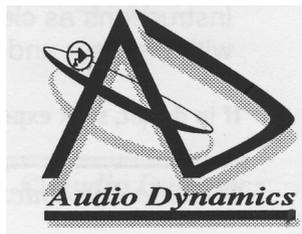
AUDIO DYNAMICS

Power **WAVE**

XG

16bit Sound Expansion System

MANUAL





Introduction

This manual is designed to be a supplement to the DMI manual and applies to people who have purchased a full PowerWAVE system or are upgrading their DMI card.

If you have purchased a full PowerWAVE system it is recommended that you read both the DMI and PowerWAVE manuals before attempting installation of any kind.

While installing the card please refer to the Installation section on page 4 of your DMI manual and the Expansion card installation -instructions in your Acorn manual.

Because of the basic differences in PCB layout and the way the cards are installed, the PowerWAVE 30 and PowerWAVE 50 are dealt with separately.

Please refer to the appropriate section for the card you have purchased.

Software Backup

As with any new software, before loading the main application the master disc should be copied and stored safely. The copy should then be retained for general use.

If your computer has a hard disc drive, storing the application on this will speed up the loading process.

Disclaimer

Audio Dynamics cannot accept responsibility for any damage occurring to machines resulting from installation or use of Audio Dynamics products.

While every effort has been made to make the installation instructions as clear as possible the responsibility of installation lies with the user and not the supplier of the product.

If in doubt, seek expert advice.



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PowerWAVE 30 / 30XG

Installation

If you are **upgrading** to a PowerWAVE 30 / 30XG the DMI 30 main PCB need not be removed from the host computer.

The DMI 30 is upgradable to a PowerWAVE 30 / 30XG system by the simple addition of two hardware modules:

The **power converter - DC1**, and a **synthesiser daughter board**. Both modules plug into clearly marked connectors provided on the main PCB.

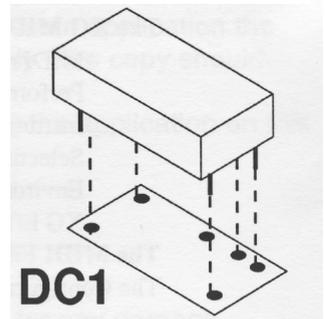
See DMI manual page 6 - Fig 1.0 for DC1 and JP1 board positions.

The power converter is a 6-pin device which plugs into the area marked DC1 on the main PCB.

It is not symmetrical so therefore cannot be connected the wrong way round.

As with the main expansion card, ensure that all the pins on the power converter are aligned with the pin-sockets on the main PCB before pressing it fully in.

NB. If you have purchased a full PowerWAVE system as opposed to an upgrade, the power converter DC1 will already have been fitted. The DMI 30 main PCB should then be installed into the host computer, **before** the synthesiser daughter board is fitted.

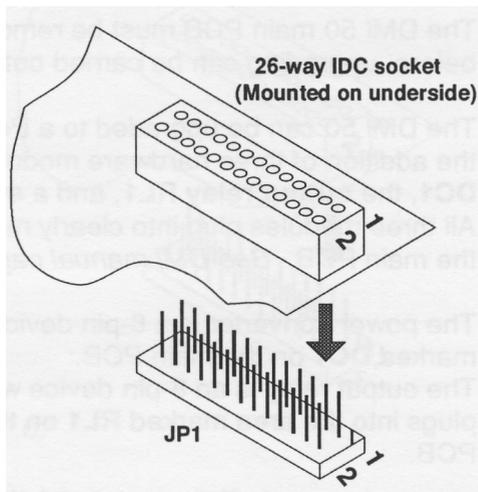




The synthesiser daughter board can now be connected by the 26-way IDC socket on its underside to the 26-way header JP1.

It should be orientated so that pins 1 and 2 of the 26-way socket align with pins 1 and 2 of the header mounted on the main PCB.

The daughter board should form a second "layer" which covers most of the main PCB and overlaps the edge nearest to the expansion connectors.



It is important to ensure that all 26 pins are fully inserted.

The daughter board has a plastic "stand-off" on the underside to support it and reduce stress on connector JP1.

***Important Note:** Great care must be taken to ensure that the 26-way socket on the daughter board is correctly aligned with all 26 pins of JP1, leaving no pins exposed. If this is not done then permanent damage can occur to the daughter board.*

Audio Connections

The audio output from the PowerWAVE 30 appears on the 3.5mm jack socket (SK3) on the back panel and the pair of phono sockets on the MIDI lead. See *DMI manual page 8*.

The 3.5mm socket can be connected directly to "Walkman" style headphones or active speakers, while the phono sockets are for connections to a hi-fi system with similar connectors.



PowerWAVE 50 / 50XG

The DMI 50 main PCB must be removed from the host machine before upgrading can be carried out.

The DMI 50 can be upgraded to a PowerWAVE 50 / 50XG system by the addition of three hardware modules: The **power converter -DC1**, the **output relay RL1**, and a **synthesiser daughter board**. All three modules plug into clearly marked connectors provided on the main PCB. See *DMI manual page 10 - Fig 2.0*

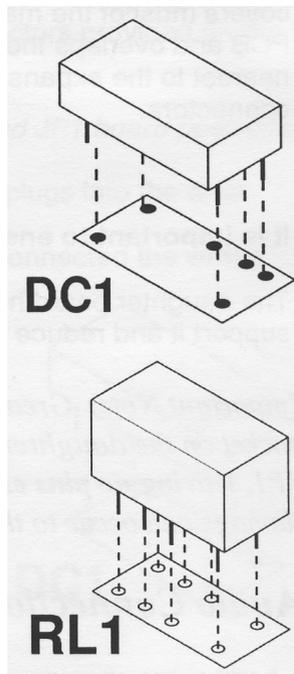
The power converter is a 6-pin device which plugs into the area marked **DC1** on the main PCB.

The output relay is an 8-pin device which plugs into the area marked **RL1** on the main PCB.

The devices differ in the number and positioning of their legs and therefore cannot be inserted into each other's sockets.

As with the main expansion card, ensure that all the pins on the power converter and output relay are aligned with their respective pin-sockets on the main PCB before pressing them fully in.

NB. If you have purchased a full system as opposed to an upgrade, DC1 and RL1 will already have been fitted.



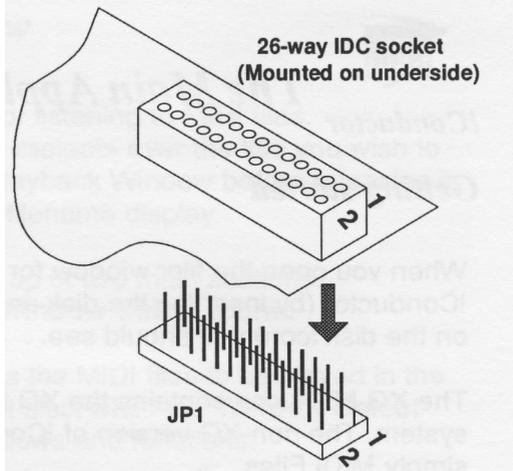
The daughter board can then be connected by the 26-way IDC socket on its underside to the 26-way header JP1.



It should be orientated so that pins 1 and 2 of its 26-way socket align with pins 1 and 2 of the header mounted on the main PCB.

The daughter board should form a second "layer" which covers most of the main PCB.

The 2 plastic stand-offs supplied with the daughter board should then be pressed into the mounting holes in the main PCB



(see DMI manual page 10 Fig 2.0)

It is important to ensure that all 26 pins are fully inserted.

Important Note: Great care must be taken to ensure that the daughter board's 26-way socket is correctly aligned with all 26 pins of JP1, **leaving no pins exposed**. If this is not done then permanent damage can occur to the daughter board.

Audio Connections

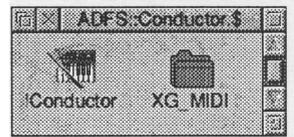
The audio output from the PowerWAVE 50 / 50XG appears on the 3.5mm jack socket on the back panel marked "OUTPUT", and the pair of phono sockets on the MIDI lead. See DMI manual page 12. The 3.5mm socket can be connected directly to "Walkman" style headphones or active speakers, while the phono sockets are for connections to a hi-fi system with similar connectors.



The Main Application

Getting started

When you open the file window for !Conductor (by inserting the disk and clicking on the disk icon) you should see. .



The XG MIDI icon contains the XG MIDI files for playback on an XG system. The non-XG version of !Conductor displays an icon labelled simply MIDI Files.

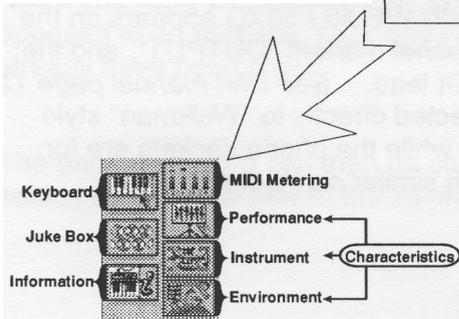
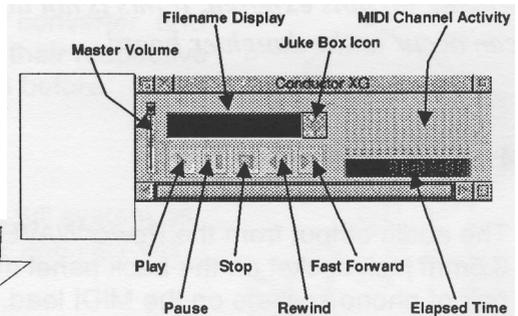
Double-clicking <select> over the !Conductor icon will load the application and place the icon at the right hand side of the icon bar.

Clicking <select> over this will reveal the playback window.

Playback

Conductor & ConductorXG feature the same playback window.

The XG version however, features a slightly enhanced floating pane.



The keyboard, Jukebox, and information icons are the same, whereas the XG mixer window is split into **Characteristics**.

See pages 18-20



The Playback Window

The Playback window is used for listening to MIDI files.

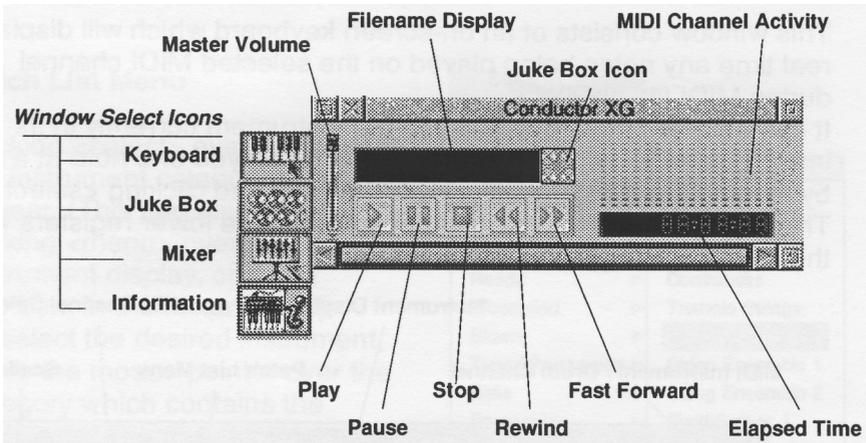
The files are loaded by clicking <select> over the title you wish to hear and dragging it over the Playback Window before releasing it. The title will then appear in the filename display.

The Playback Window is made up of two main sections.

Transport and Playback and Window Select Icons.

Transport and playback allows the MIDI files to be played in the same way as a tape or compact disc, while the **Window Select Icons** give access to other windows and functions.

Transport and Playback



This consists of all the transport keys you would normally see on a tape machine or CD -player.

Clicking <select> on any of these will cause that function to be carried out on the MIDI file displayed in the filename display.

To the left of the transport keys is the **Master Volume Control**.

Clicking and holding <select> over this and moving the slider downwards will reduce the overall volume.



To the right of the transport keys are the **Elapsed Time** and **MIDI Channel Level Displays**.

These show the length of time the MIDI file has been playing and the activity on each of the 16 MIDI channels respectively.

Window Select Icons

These allow other windows to be selected.

They are, from the top: **Keyboard, Juke box, Mixer, and MIDI file - information.**

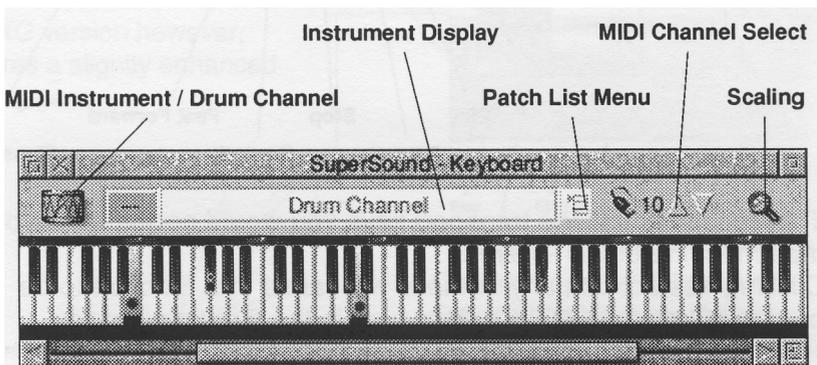
These windows are described in the following sections.



The Keyboard Window

This window consists of an on-screen keyboard which will display in real time any notes being played on the selected MIDI channel during MIDI file playback.

It can be also be used to audition the instrument currently in its instrument display. The instrument can be played one note at a time, by moving the mouse pointer over the keys and clicking <select>. The keys to the left of the display represent the lower registers while the keys to the right represent the upper ones.



The window displays a variety of icons which have the following functions.



MIDI Instrument / Drum Channel

This icon toggles between a trumpet and a drum.

The trumpet indicates that the keyboard is currently playing one of the MIDI channels from 1 - 9 or 11 - 16.

Clicking <select> on the trumpet icon causes it to change to a drum indicating that the keyboard is currently playing MIDI channel 10. (Reserved for drums and percussion.)

Instrument Display

This displays 3 pieces of information.

The number at the left hand side indicates the MIDI patch number of the instrument currently playing.

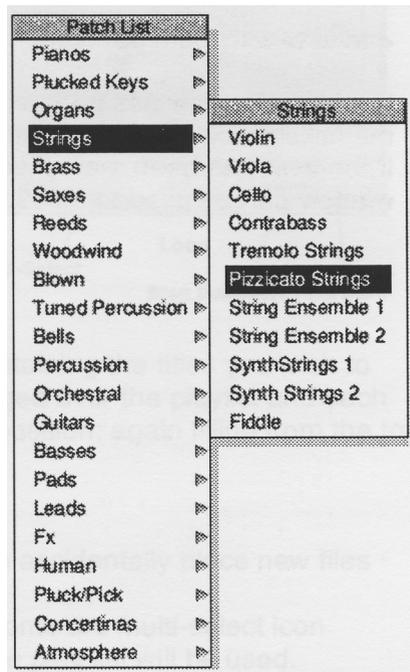
The title in brackets indicates the instrument category. ie. Pianos, Brass, Woodwind.

The unbracketed title indicates the actual instrument playing.

Patch List Menu

Clicking <select> over this causes the instrument category list to appear. (This can also be done by clicking <menu> over the instrument display, or patch numbers in the mixer page.) To select the desired instrument, move the mouse pointer over the category which contains the instrument you require.

Then move the pointer to the right to reveal the actual instruments within that category. Clicking <select> over the required instrument will cause it to be selected and will place it in the instrument display, along with its category.





MIDI Channel

This number indicates the MIDI channel that is currently being used by the on-screen keyboard.

Clicking <select> over the up/down arrows to the right of the number will cause the selected MIDI channel number to be increased or decreased by one.

NB. Changing instruments on MIDI channels in this window will result in a corresponding change in the mixer window, thereby altering any MIDI file that may be playing.

Scaling

The on-screen keyboard size can be adjusted by clicking <select> or <adjust> over this icon.

<select> will zoom in, displaying fewer octaves and making the keys appear larger.

<adjust> will zoom out creating the opposite effect.

Whether the view has been zoomed in or out, clicking <select> over the full size icon will ensure the whole window is optimised. If the view has been magnified the scroll bar at the bottom of the window can be used to move up or down the keyboard.



The Juke Box Window

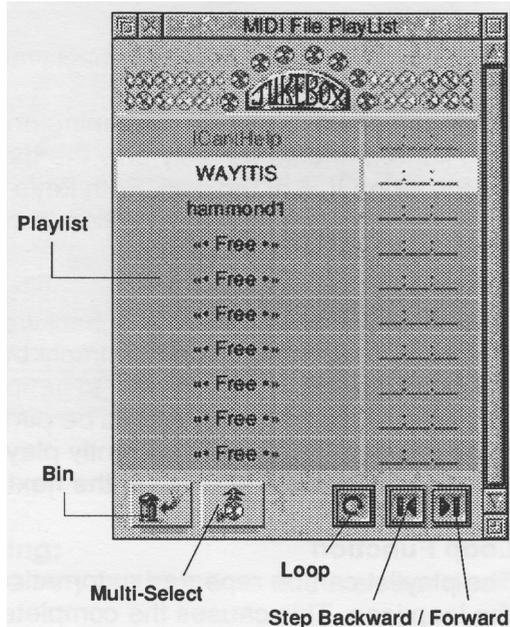
The Juke Box allows automatic playback of a selection of MIDI files sequentially, ie. one after the other.

Loading

The files can be placed into the Juke Box in any order by clicking <select> over the desired title and dragging it onto the playlist.

The playlist will be filled from the top downwards.

Once the playlist is full any additional titles that are dragged over it will replace the existing ones in the position directly underneath the mouse pointer.



A selection of files can be loaded by creating a drag-box containing the titles you wish to play. The selection can then be dragged over the playlist and each file will automatically be allocated a position; again filling from the top downwards.

Multi-Select Function

If the playlist is nearly full it is easy to accidentally place new files over the top of existing ones.

To avoid this, dragging the new files onto the multi-select icon ensures that only empty spaces in the play list will be used.



Playback

Once the playlist is satisfactory the selected files can be heard by clicking <select> over the Juke Box icon. This is positioned to the right of the filename display in the **Playback Window**. The file at the top of the playlist will be placed in the filename display and clicking <select> over the play key will start the Juke Box. It will continue to play through the files in order, until the last one is reached.

Step forward / backward keys

It is possible to step forward or backwards through the playlist using these keys.

When the playlist is at the beginning only the forward key will be high-lighted and conversely only the backward key will be highlighted when it is at the end. Both keys are high-lighted if it is possible to move in either direction through the list.

Skipping

As well as stepping forwards or backwards one file at a time, more than one file can be "skipped" simply by clicking <select> over the top of the file to which you wish to jump. The files between this one and the file currently playing will be dimmed indicating that they are to be missed out. The file currently playing will be allowed to finish but the playlist will then skip to the next high-lighted file.

Loop Function

The playlist can be repeated automatically by clicking <select> over the loop icon. This causes the completed playlist to return to the beginning and start again. This continues indefinitely until the loop function is cancelled by once again clicking <select> over the loop icon.

The loop function will ignore any "skipping" that may have been done on a previous playback.

Bin Function

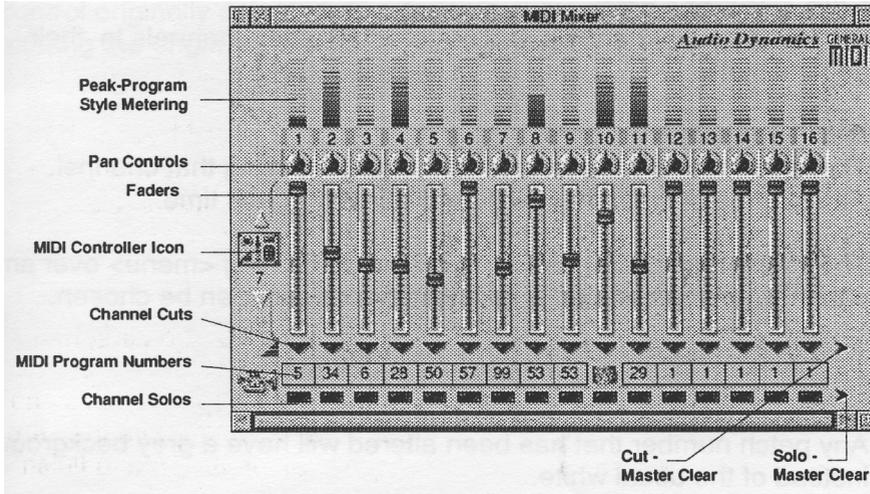
Clicking <select> over the bin icon clears the playlist completely. (Binning it's contents!)



The MIDI Mixer Window

(See pages 18-20 for XG MIDI mixer Characteristics windows)

The mixer window allows real time monitoring of a variety of MIDI controllers.



Peak Program Style Metering:

The bargraph metering has a very fast rise time and a slower decay making it easy to read.

Pan Controls:

These display the left / right position of the audio using that channel in real time.

Faders:

The faders show the volume level of each individual MIDI channel in real time.

Cut Controls:

These allow a channel to be removed from the mix. Any number of channels can be cut or restored.

**Cut master Clear:**

Restores all cut channels to their original state.

Solo Controls:

These cut all channels other than themselves and other solo channels.

Solo - Master Clear:

Clears any solo channels and restores all other channels to their original state.

MIDI Program Numbers:

These indicate the General MIDI instrument using that channel. Any change of instrument will be displayed in real time.

The full instrument list can be revealed by clicking <menu> over any channel's patch number. A new instrument can then be chosen.

See Keyboard Window, patch list menu section.

Any patch number that has been altered will have a grey background instead of the usual white.

To cancel the change click <adjust> over the relevant patch number.

MIDI Drum Channel:

This indicates MIDI channel 10 is reserved as the drum channel.

Overriding

Channel volume can be overridden by clicking and holding <select> over the respective fader knob, and dragging it up or down. Volume override is indicated by the fader track and knob turning yellow.

A channel's pan position can be overridden by clicking <select> over the respective pan control, and then moving the fader knob down for left or up for right. Pan override is indicated by the pan control background turning yellow.



The fader will revert to a volume control when pan override is cancelled.

Any override can be cancelled by clicking <adjust> over **the selected control**, which will then revert to its original setting.

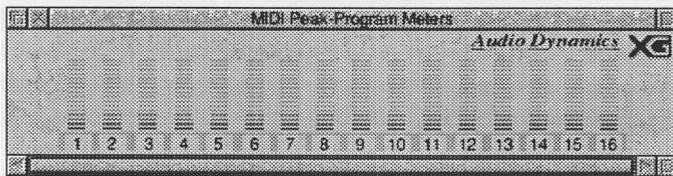
NB. An override cannot be cancelled simply by clicking <adjust> over **the fader**. Cancellation only occurs when it is applied to the control originally selected. The fader is only used as a means of altering the original settings.



The XG MIDI Mixer - *Characteristics* Windows



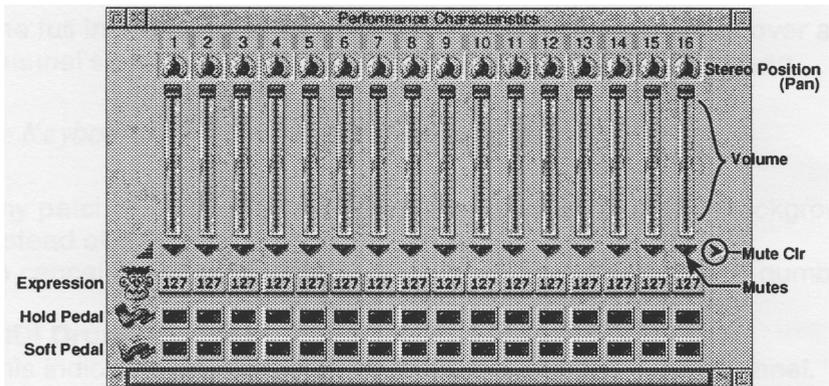
MIDI Meters



The MIDI Meters show all activity on MIDI port1, channels 1 to 16.



Performance Characteristics



The Performance Characteristics window shows and defines the dynamics of a particular performance. You can over-ride any of the current settings

Volume Clicking.. <left-button> on one of the sliders allows adjustment
<right-button> resets to the old value

Muting Clicking.. <left-button> on one of the mutes icons cuts audio
<left-button> on the MuteClr icon clears all current "Mutes"

Pan Clicking.. <left-button> on one of the Pan icons allows adjustment of
the current stereo position (via the slider)
<right-button> resets to the old value (and reverts slider)

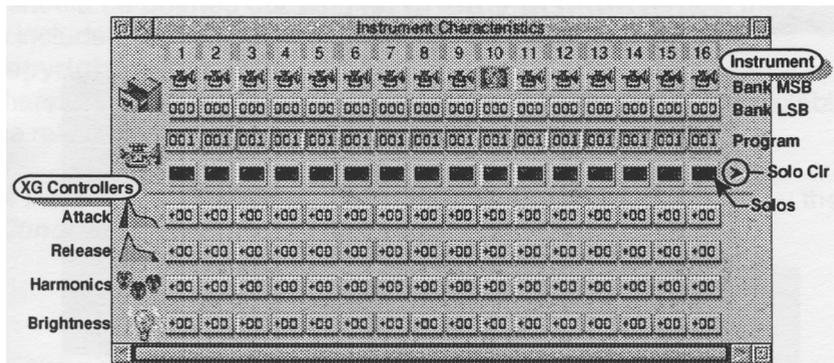


Pedals Clicking., <left-button> on one of the pedal icons toggles its status
<right-button> on one of the pedal icons reverts its status

Express Clicking.. <left-button> on one of the expression values reveals the "data-entry" window.
<right-button> on one of the expression values reverts to its "current" automated value.



Instrument Characteristics



The Instrument Characteristics window reflects the XG setup and selection of each instrument across the 16 MIDI channels.

Selecting An Instrument

XG uses a system of "bank" selection to allow access to eXtended General MIDI sounds.

Firstly the MSB selects instrument, SFX, SFX Kit or Drum Kit.

Secondly the LSB selects an **XG** variation on the original GM sound.

Once you have selected an instrument "bank" (by changing the LSB) any program changes thereafter will use that bank.

The default setting is 0 which specifies GM.

Ref : Page 32 YAMAHA manual - English (Green cover)

Page 48 YAMAHA manual - German (Brown cover)

BankMSB:

Clicking. <left-button> on one of the MSB icons opens the "bank" window.
<right-button> on one of the MSB icons reverts to old value / "current" automated value.



Attack, Release, Harmonics, Brightness & Bank LSB:

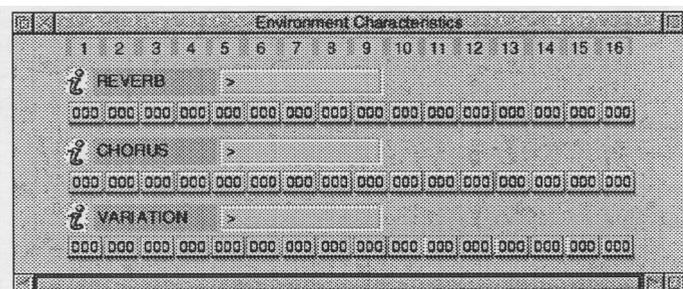
Clicking.. <left-button> on one of the icons opens the data-entry window.
 <right-button> on one of the icons reverts to old value

Solos:

Clicking.. <left-button> on one of the solo icons cuts audio on all non -solo channels.
 <left-button> on the SoloCir icon clears all current "Solos"



Environment Characteristics



The Environment Characteristics window reflects the **XG** setup for the three effects "busses" available, across the 16 MIDI channels.

XG Effects

XG provides extensive effects to enhance arrangements by providing digital acoustic environments and special effects.

These effects fall into three categories

- 1.. Reverb : Simulated environments (Hall, Room)
- 2.. Chorus : "Thickening" of sounds (Chorus, Flange)
- 3.. Variation : Special effects (Delay, Distortion, EQ)

Reverb, Chorus & Variation:

Clicking.. <left-button> on one of the icons opens the data-entry window.
 <right-button> on one of the icons reverts to old value

NB. The implementation of effects is limited to modification of existing settings.
 (Try loading the different XG files provided and changing the Reverb, Chorus, and Variation values.)



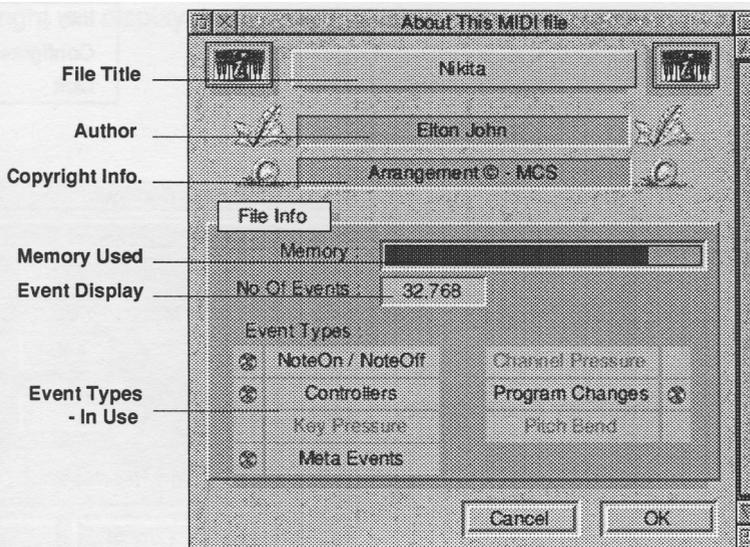
The MIDI File Information Window

This window displays information relevant to the MIDI file currently loaded in the Playback Window.

It should be pointed out that not all MIDI file Creators take the trouble to include the information regarding **File Title, Author, and Copyright** in their files.

Therefore in some instances where this information is not available the relevant displays will be left blank.

All the other information in the window however, is obtained by the **Conductor** application and is explained below.



Memory Used:

This displays the amount of memory used by the MIDI file as a proportion of the memory available.

The amount of memory available is set in the **Configuration Window** and defaults to 212K



Event Display:

This shows the total number of events occurring within the MIDI file. Many different types of event can take place and these are displayed underneath.

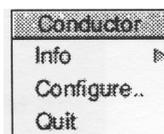
Event Types In Use:

This lists the different event types and shows whether they are present in the current MIDI file.

The Configuration Window

This is accessed by clicking <menu> over the **!Conductor** icon on the icon bar.

Moving the pointer over **Configure** and clicking <select> will open the Configuration Window.



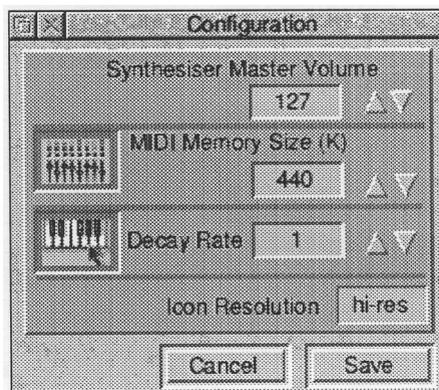
The window displays four settings.

The Synthesiser master Volume.

The MIDI memory size.

The Key decay rate.

The icon resolution.





Synthesiser master volume or **MIDI memory size** can be altered by clicking <select> over the up / down pointers in their respective sections.

Key decay rate defines the speed of movement of the keys in the keyboard page after the keys have been released.

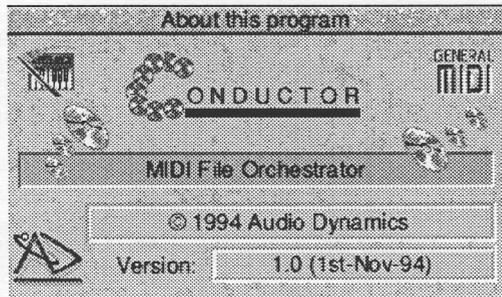
This applies whether operating the keyboard using the mouse or playing from a MIDI file. See keyboard section.

Icon resolution will simply toggle between hi and low.

Clicking <select> over the save icon will store all the settings.

Information

Placing the mouse pointer over info on the icon bar menu and then moving it to the right will display the information window.





General MIDI

The PowerWAVE's voices comply to the General MIDI standard as defined by the MIDI Association. This means it is fully compatible with any MIDI files which also comply to this standard.

The General MIDI Sound Set comprises 128 instruments and 47 percussion sounds and these are listed below.

MIDI Program Numbers 1- 128 (All Channels except 10)

1	Acoustic Grand Piano	30	Overdriven Guitar	59	Tuba
2	Bright Acoustic Piano	31	Distortion Guitar	60	Muted Trumpet
3	Electric Grand Piano	32	Guitar Harmonics	61	French Horn
4	Honky-tonk Piano	33	Acoustic Bass	62	Brass Section
5	Electric Piano 2	34	Electric Bass (finger)	63	SynthBrass 1
6	Electric Piano 1	35	Electric Bass (pick)	64	SynthBrass 2
7	Harpsichord	36	Fretless Bass	65	Soprano Sax
8	Clavi	37	Slap Bass 1	66	Alto Sax
9	Celesta	38	Slap Bass 2	67	Tenor Sax
10	Glockenspiel	39	Synth Bass 1	68	Baritone Sax
11	Music Box	40	Synth Bass 2	69	Oboe
12	Vibraphone	41	Violin	70	English Horn
13	Marimba	42	Viola	71	Bassoon
14	Xylophone	43	Cello	72	Clarinet
15	Tubular Bells	44	Contrabass	73	Piccolo
16	Duleimer	45	Tremolo Strings	74	Flute
17	Drawbar Organ	46	Pizzicato Strings	75	Recorder
18	Percussive Organ	47	Orchestral Harp	76	Pan Flute
19	Rock Organ	48	Timpani	77	Blown Bottle
20	Church Organ	49	String Ensemble 1	78	Shakuhachi
21	Reed Organ	50	String Ensemble 2	79	Whistle
22	Accordion	51	SynthStrings 1	80	Ocarina
23	Harmonica	52	Synth Strings 2	81	Lead 1 (Square)
24	Tango Accordion	53	Choir Aahs	82	Lead 2 (sawtooth)
25	Acoustic Guitar(nylon)	54	Voice Oohs	83	Lead 3 (calliope)
26	Acoustic Guitar (steel)	55	Synth Voice	84	Lead 4 (chiff)
27	Electric Guitar (jazz)	56	Orchestra Hit	85	Lead 5 (charang)
28	Electric Guitar (clean)	57	Trumpet	86	Lead 6 (voice)
29	Electric Guitar (muted)	58	Trombone		



87	Lead 7 (fifths)	101	FX 5 (brightness)	115	Steel Drums
88	Lead 8 (bass + lead)	102	FX 6 (goblins)	116	Woodblock
89	Pad 1 (new age)	103	FX 7 (echoes)	117	Taiko Drum
90	Pad 2 (warm)	104	FX 8 (sci-fi)	118	Melodic Tom
91	Pad 3 (polysynth)	105	Sitar	119	Synth Drum
92	Pad 4 (choir)	106	Banjo	120	Reverse Cymbal
93	Pad 5 (bowed)	107	Shamisen	121	Guitar Fret Noise
94	Pad 6 (metallic)	108	Koto	122	Breath Noise
95	Pad 7 (halo)	109	Kalimba	123	Seashore
96	Pad 8 (sweep)	110	Bag pipe	124	Bird Tweet
97	FX 1 (rain)	111	Fiddle	125	Telephone Ring
98	FX 2 (Soundtrack)	112	Shanai	126	Helicopter
99	FX 3 (crystal)	113	Tinkle Bell	127	Applause
100	FX 4 (atmosphere)	114	Agogo	128	Gunshot

General MIDI Percussion Map **(Channel 10)**

35	Acoustic Bass Drum	51	Ride Cymbal 1	67	High Agogo
36	Bass Drum 1	52	Chinese Cymbal	68	Low Agogo
37	Side Stick	53	Ride Bell	69	Cabasa
38	Acoustic Snare	54	Tambourine	70	Maraeas
39	Hand Clap	55	Splash Cymbal	71	Short Whistle
40	Electric Snare	56	Cowbell	72	Long Whistle
41	Low Floor Tom	57	Crash Cymbal 2	73	Short Guiro
42	Closed Hi-Hat	58	Vibraslap	74	Long Guiro
43	High Floor Tom	59	Ride Cymbal 2	75	Claves
44	Pedal Hi-Hat	60	High Bongo	76	High Wood Block
45	Low Tom	61	Low Bongo	77	Low Wood Block
46	Open Hi-Hat	62	Mute High Conga	78	Mute Cuica
47	Low-Mid Tom	63	Open High Conga	79	Open Cuica
48	High-Mid Tom	64	Low Conga	80	Mute Triangle
49	Crash Cymbal I	65	High Timbale	81	Open Triangle
50	High Tom	66	Low Timbale		

Yamaha XG not only complies with, but greatly enhances the General MIDI sound set by providing several variations of many of the voices listed above. Please refer to your DB50XG owners manual.



Notes



Notes

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Audio Dynamics

Why cause ripples when you can make waves !!!

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