# GETTING STARTED !!!

*If you're absolutely new to MIDI and want to know more, you can find the MIDI specifications at* **www.midi.org/about-midi/tutorial/tutor.shtml**

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**NOTE:** *If your instrument has String Triggers, you will notice that there is a metal strip on the back of the neck. This is not a protective tape and do not remove it!*

## Basic layout of the instrument:

**1]** The Zboard is divided into two main sections, the **Fretboard** and the **Sensors**. The Sensors include the String Triggers and all the Pads, Pots, Pedals and other performance devices on the instrument, everything other than the fingerboard

**2]** There is a row of Function **"HotKeys"** on the top of the Zboard. These HotKeys control functions that you are most likely to change quickly while you are playing music.

**3]** There is also a **Programming/Display** module onboard that you will use to setup up the various functions of the Zboard in detail.

> Press EDIT and you will see selections for programming the features of the Zboard.
>
> The Fretboard is programmed in the *Fretboard* (or *Zones)* screen.
>
> The Sensors are assigned functions and MIDI Events in the *Sensors* and *Sensors/Events* screens
>
> The physical touch response for the Sensors and the Fretboard is set up in the *Response* menu screens and the *Curves* screen.

The Zboard can be powered from either a **DC power supply or a USB 2.0 port** on your computer.

If the instrument is equipped with USB, a 3-position power switch is provided :



*DC<>OFF<>USB*
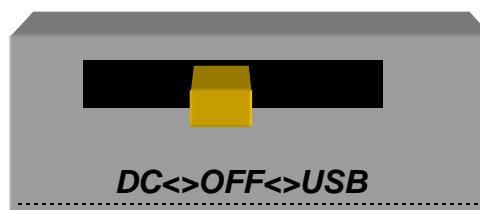
## Turning On the Zboard:

***To Power from the AC/DC adapter:***

- Use a **5-conductor** MIDI cable (all 5 pins must be wired) from the Zboard MIDI Output to the Controller connection on the PB-1 power supply adapter.

- Connect the supplied DC wall-supply to the PB-1.

- Connect a MIDI cable from the SYNTH jack of the PB-1 to the MIDI IN on your synth or other MIDI system.

- Move the 3-position rocker switch to the DC position and you should see the display light up. If it doesn't, check your MIDI cable and wall-wart for correct type and connections. If you're stuck here go the Troubleshooting section at the rear of the manual.

DC power is supplied to the instrument from a wall-mount AC/DC power supply that connects to your PB1 ***phantom*** power adapter. A standard 5-wire MIDI cable is connected from the PB1"Controller" port to your Zboard MIDI Out Port and will power the Zboard as well as route MIDI data to your synth.

*If you have a Starr Labs Phantom Battery Supply for use with your onboard MIDI wireless transmitter, connect it to the Zboard input port instead of the MIDI cable.*
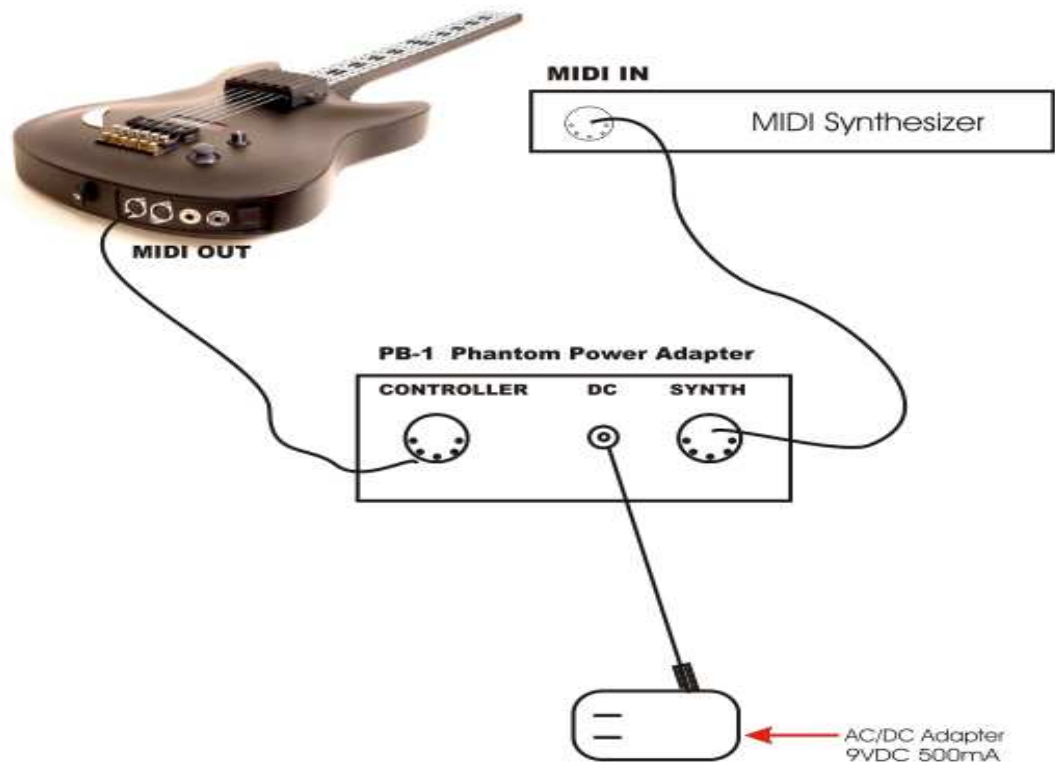
***Connecting to USB Power:***

- Connect a USB cable from the USB port on the Zboard to the USB 2.0 compliant 500mA USB port on your computer.

- Move the 3-position rocker switch to the USB position.

## If there is a Sound Card installed in your ZBoard

- Because of the power requirements of the Sound Card there is a need for a larger power supply to power the system 9VDC @ 1000 mA.

- A USB 2.0 port on your computer will power the Zboard but not both the Zboard and a Sound Card.

MIDI IN

MIDI Synthesizer

MIDI OUT

PB-1 Phantom Power Adapter

CONTROLLER    DC    SYNTH

AC/DC Adapter
9VDC 500mA

Use a 5-conductor MIDI cable (all 5 pins must be wired) from the controller to the PB-1, power supply.

Plug into the MIDI Output connector, closest to the center of the guitar. From this position the connectors are: MIDI Out, MIDI In, Sustain, Volume and Reset.

Connect the Zboard MIDI Out cable to the Controller input of the PB-1 power adapter.
Connect a MIDI cable from the SYNTH jack of the PB-1 to the MIDI IN on your synth.
Connect the supplied DC wall-supply to the PB-1.
Flip the power switch on the instrument and you should see the display light up. If it doesn't, check your MIDI cable and wall-wart for correct type and connections. If you're stuck here go the Troubleshooting section at the rear of the manual.

## USB Drivers

***The Starr Utilities disc provides both WinXP and Mac USB drivers.***

The XP driver is installed by "StarrLabs_Driver_Setup.exe". The installation guide is also on the disc, "Starr USB Installation Guide.pdf".

The Mac driver is "zTar Mac Driver 2.1.pkg"

## Basic Operation

If the Display lights up and displays the first bank of Song presets, you're up and running.

If the **TRIG** and **G/POLY** LEDs are now lit you're set up like a guitar so start picking! Hold a key and press the **TRIG** button to play the fingerboard tapping-style. Press the **G/Poly** button to play more than one note per string.

**Use the Live Menu,** the power-up run-time  to select onboard patches or **SONGS**.

Hit the **EDIT-KEY** to enter the **Song Menu**, the Zboard's top-level Edit-screen. From there you'll access all of the edit functions.

**Use the Zone Menu** to set up the fingerboard according to your needs. This includes defining areas of the neck for selected voices, MIDI channels, transpositions, Velocity Inversion, and Base Volume setting.

**Use the Sensor Menu** to program the Pads, Triggers, Joystick, and Pedals for MIDI effects, chords, and sequences.

**Use the Utilities/Tuning Menu** to set the tuning for the fingerboard, the Open Strings, Right/Left switch and Enable the HammerOns/PullOffs.

**Use the Triggers front-panel key** to turn on/off the Triggers. With the Triggers On you can strum them like a guitar. With the Triggers Off you can tap the fingerboard like a keyboard. Hold a fingerboard key and press the TRIG key.

**Use the Guitar/Poly key** to switch between One-Note-per-String or All-Notes-per-String. You can play the "Open Strings" in GUITAR mode with the TRIGGERS ON. Strike the Trigger with nothing fretted to hear the open string.

Use the **Pat+/Pat-** and **Oct+/Oct-** Hotkeys to set the synth patch(es) and Octave.

After you've created a special setup for the Fingerboard and the Sensors according to your needs you can save it to battery-backed memory by using the **Write** key or the "Write" menu from the display.


### SENSORS
The "Pads" are our general term for the input hardware, the Triggers. Occasionally we refer to a Sensor as a "Pad" in this manual and in the menu-system as the structure that holds setup assignments for each of the hardware inputs within each SONG.

**ZONES** in the Zboard are similar to the Layers that are often found in MIDI keyboards.

### EVENTS

## Basic Building Blocks

An Event may be a MIDI note, Continuous Control message, Program change, or any of a number of other MIDI data-types. Each Pad may be assigned up to eight events or a sequence of variable-length.

### SONGS
The full group of Sensor inputs may be assembled with all of their various assignments along with the various assignments to the fingerboard and the metronome to form on-board patches or SONGS. There are currently 24 Songs in the Zboard without the addition of a RAM card.

### HOTKEYS
These are the strip of named function keys the are mounted on the top or side of the instrument and are provided for quick access to commonly used features.




Congratulations on your purchase of a ZBOARD MIDI guitar controller. With its combination of hardware and software features it may be the most versatile and expressive electronic musical instrument that can be had at any price and it should afford you a lifetime of creative exploration.

You can skip this section if you want to jump right into programming the instrument. In general, it's a good idea to look over this manual, just to see what's in your new instrument.

# OVERVIEW of the Z-Board

The Zboard 24x24 keyboard provides an array of 576 programmable keys, four program-mable rotary pots, Sustain and Volume pedal jacks, and a 4-way programmable joystick.

Use the FRETBOARD menu to program the Keyboard and the SENSORS menu to make assignments to the pots and other Sensors.

Use the Response menu to set up the physical response for both the Keyboard and the Sensors.

## User Interface

The ZBOARD is supported by a Programming/Display system with a 2 line by 40 character backlit LCD and a 'softkey' based User Interface. What this means is that the eight keys that surround the display are used to select  items depending on the context of the particu-lar menu screen. The menu-system is a tree-like structure. The Zboard has to manage quite a bit of programmable information but every effort has been made to keep the nesting of menus to a minimum and the navigation of the system as simple and intuitive as possi-ble.

The **EDIT** key is used both to enter an edit-screen in some menus and more often to exit from a menu-screen when you're finished programming. In general, pressing EDIT several times will back you out of a series of menus and bring you back to the top SONG-MENU, or LIVE-mode

The Zboard Operating System has a **LIVE** mode and an **EDIT** mode. Pressing the EDIT key from the SONG-MENU enters the EDIT-Mode to alter the various setup parameters of the fingerboard, pads, triggers, joystick and pedals. The ZBOARD will continue to play while in the EDIT mode; however, make sure to exit back to the LIVE mode after complet-ing an edit as you may accidentally re-program one of your setups by hitting the joystick or another programming key. Also, the instrument will play a bit faster in the LIVE mode as there it isn't a necessity to update the Edit screens and look for programming input.

**Programming, Mode Selection and Data Entry:**
Many of the programming features on the ZBOARD have been implemented in the screen/ menu system and also in shorthand fashion on the front-panel "hot-keys". In the screen/ menu system the eight "soft" keys surrounding the display will be physically near their se-lections on the screen. Use of the hot-keys will save a number of keystrokes. Also, the joy-stick is used both as a performance tool and a data entry device in conjunction with the data Up/Down buttons when programming the system.

**"Chase" features**
In several of the menus a String, or a Key, or other Sensor may be selected by simply touching it, in addition to using the Display keys

**A little more Terminology**

In an effort to make the ZBOARD as fully user-programmable as possible some existing MIDI concepts have been expanded and are slightly re-defined:

Patches for the ZBOARD are called SONGS or KITS. You will see both references used.  A Song stores the complete configuration for the instrument. This includes all of the fingerboard splits/zones, transpositions, patches, tunings, and all of the MIDI control assignments for the SENSORS, including any recorded Notes, Chords or Drums, Continuous Control EFX, and a list of other parameters. SONGS may be thought of as 'Kits' in the sense used in an electronic percussion device, a set of assignments of hardware Triggers to MIDI output functions and the player's response setups for all of the hardware. There is no analogous term in guitar playing so we chose 'SONGS' as you might use a different configuration for each song in a set, different voices, etc.

ZONES in the ZBOARD environment are arbitrary rectangular areas of the fingerboard defined by two diagonal corner points like a select-window on a computer screen. Zones are each assigned a MIDI channel as well as a number of other values. You can use the Zoning system to create some magical performance setups!

Up to 32  zones may be configured at any time. A zone may be as small as one note or as large as the entire fingerboard. Where Zone boundaries  overlap they will share qualities in those areas. A 'keyboard-split' occurs where adjacent zones do not overlap. Zones may be defined by simply picking a high and a low note from the fingerboard. When all of the desired parameters influencing a zone have been punched in, the zone may be saved into a Song Memory location.  Zones may thus be set up to perform melody, accompaniment, percussion and effects all from a single instrument. Library functions are available for copying a previously configured Song for use as a template in creating a new Song.

**Several function keys have been placed on the surface of the Zboard to allow quick changes to the setup of the instrument:.**

*The PAT, OCT, and SOLO keys are 'Zone-based' controls that allow you to select a zone by playing and holding a note within it and adjust the parameter for just that Zone. So, if you have say two zones on the fingerboard, you can touch a key in one (or both) and then press the hotkey to change the Patch, etc for that zone. This shortcut lets you make changes while you're performing rather than having to wade through menus to reprogram the system.*

## HOTKEYS/ FUNCTION KEYS

**OCT Up/Down:** These buttons allow you to change the Octave for any Zone on the fingerboard giving you access to the full MIDI note range.

**PAT Up/ Down:** These buttons allow you to access up to 128 MIDI patches within any Zone

**PANIC!:**
The first time you hit Panic! It sends All NotesOff and Reset All Controllers to each active channel.

The second time you hit Panic! It sends the same messages to all channels.

The third time and every time thereafter that you hit the Panic! we use the brute force approach that sends a Note-off to every note and a Data-zero (or 127) to reset every Continuous Controller for every MIDI channel . This takes about 2 seconds but should definitely clear any stuck messages for any synth,

**JOYSTICK**

## SENSOR HARDWARE

The joystick is used  as a performance device by programming MIDI messages to any of its four directions. Also, when programming the menu-system, the joystick is used for data-entry by scrolling vallues underneath the blinking cursor.
**PADS**
These are the touch-sensitive surfaces that come in a variety of shapes and are mounted to many Zboard configurations and are programmed to a variety of performance controls.
**PEDALS**
There are commonly two jacks provided on a Zboard for pedals, Sustain and Volume which use a SPSPT Normally-open switch and a 50K linear pot, respectively.
**POTS AND SLIDERS**
The Zboard has one volume pot as a standard feature, and a ModWheel and additional pots available as options.

# ZBOARD Programmer Menu Tree

*- Every function in the Zboard is listed here according to the Menu Screen in which it appears.*

[ <u>MENU SCREENS</u> are listed in all CAPS. <u>Functions</u> are listed in lower case]

LIVE-SCREEN **[Top-level Runtime screen]**

**"EDIT" button [Enters the top of the menu system, and Exits from all other menus]**

SONG-MENU**:[Top-level Edit-Screen]**
    **NAME-EDIT**
    **WRITE**
    **UTILITIES**
        **LIBRARIAN**
            **Songname**
            **Save**
            **Copy**
            **Delete**
            **Swap**
            **Copy-Pad**
            **INITIALIZE**
                **Songs**
                **Response**
                **Sequences**
                **Curves**
                **Triggers**
                **Chains**
                **Coldstart**
            **TUNING**
                **Map#**
                **Presets**
                **EDIT-KEYMAP**
                **CHORD-GENERATE**
                **CHORD-EDIT**
        **BULK-DUMPS**
            **Send**
            **Receive**
        **CLOCKS**
            **Metronome Enable**
            **Metronome Channel**
            **Note#**
            **TempoPad Enable**
            **Clock: Internal/ External**
            **MIDI Clock Output**
            **BPM Setting**
            **Time Signature**
            **MORE>**
                **Time Signature Editor**
            **MORE>**
                **ClockBend**

**CURVES**
> **(8) Force-Velocity Points**

**SEQUENCES**
> **Insert-Event**
> **Delete-Event**

**Programming-Lock**

**MORE>**
> **MIDI-IN**
>> **TRIGGERS**
> **AREPEGGIATOR**

**FRETBOARD:**
> **Zone-Mode;**
> **Boundaries**
> **TUNING/ TRANSPOSITION:**
>> **Map#**
>> **Curve**
>> **Velocity**
>> **Invert**
>> **TUNING**
>> **MORE>**
>>> **Solo**
>>> **Unison**
>>> **Transposition**

> **MIDI**
>> **Patch/Velocity Send ON/OFF**
>> **Channel#: RIGHT/LEFT**
>> **SEND Pgm Chg and Volume**
>> **Patch#**
>> **Channel BankMSB#/ BankLSB#**
>> **Channel Volume**

> **SCAN-MODE**
>> **AutoSustain: On/Off  or Fingerboard-Sustain for Key-Trigger units**
>> **Trigger-Capture: On/Off**
>> **Zone-Solo (Audition): On/Off**
>> **Scan-Mode: Guitar/Polyphonic**

>> **SPECIAL**
>>> **Zone Mode**
>>> **First Pad (for Pad-Zone type)**
>>> **Fingerboard Mask**
>>> **Fingerboard Threshold**

**SENSORS**
> **Sensor Mode**
> **Fingerboard String to Strum**
> **6-TRIGGER, Guitar setup Macro**
> **TIMING MENU**
> **EVENTS**
>> **Event-type**
>> **Velocity-Window**
>> **MACROS**
>>> **CHORD-GENERATOR**
>>> **Velocity-Window settings**
>> **(8) Event-Settings**

> **OUTPUT SETTINGS**
>> **Curve**

**MIDI Port select**
**LINKS Enable and 4 Link selections**
**TRIGGER-FUNCTIONS**
**Mode select**
**DUAL Mode**
**Aftertouch Threshold**
**Aftertouch CURVE**

**RESPONSE**
**Gain**
**Response Bargraph**
**Chase On/Off**
**Scan-Time**
**Mask-Time**
**Threshold**
**Chase On/Off**
**Trigger-Mask**
**MORE>**
**Fingerboard :**
**Mask**
**Threshhold**
**Gain**
**Curve**
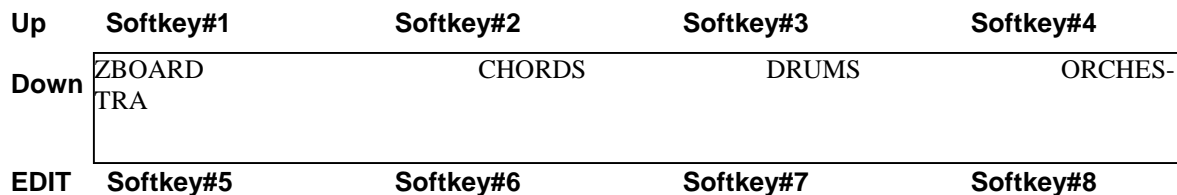**Peak readout 0-255**

**SHOWALL**
**SONGS**
**PADS**
**EVENTS**
**GATES**
**LINKS**
CHAINS
PATCHES

## MENU SYSTEM - DATA ENTRY

The menu system uses eight "soft" keys around the perimeter of the display to select various functions as indicated by the messages on the screen. Press the button nearest to your desired selection in order to activate it. An UP and a Down key are provided for data entry. The joystick, when installed, may also be used for data entry. Use the EDIT key to enter and exit the programming menus. The soft-keys are numbered here for reference in this manual.

| Up | Softkey#1 | Softkey#2 | Softkey#3 | Softkey#4 |
|---|---|---|---|---|
| Down | | | | |
| EDIT | Softkey#5 | Softkey#6 | Softkey#7 | Softkey#8 |

## LIVE-MODE MENU

| Up | Softkey#1 | Softkey#2 | Softkey#3 | Softkey#4 |
|---|---|---|---|---|
| Down | ZBOARD TRA | CHORDS | DRUMS | ORCHES- |
| EDIT | Softkey#5 | Softkey#6 | Softkey#7 | Softkey#8 |
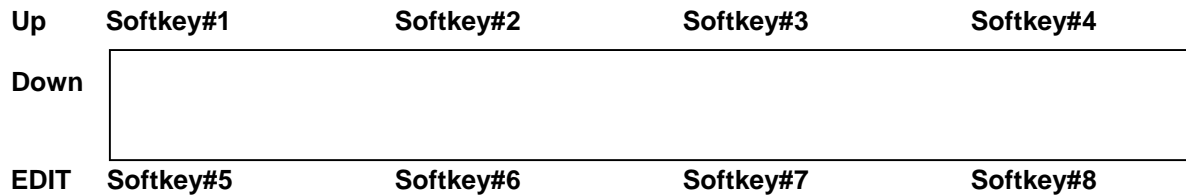
This is the top-level menu, which appears when the ZBOARD is in LIVE-mode. The zboard is in LIVE-MODE when you first power-up.

It displays the names of the various system configurations that have been saved as "SONGS". A drummer would refer to these as "KITS"; A SONG is a collection of hardware with all of our computer-assigned options and setups. The newest zboard systems (4.1.08) currently provide 36 Song locations to store your setups. The first few songs are provided from the factory as templates for your use and these are saved in flash ROM. All of the Songs that appear in the menu screens are automatically copied into battery-backed RAM so they can be edited and your changes will remain after you remove power from the ZBOARD. The Song banks may also be stored off-line via the MIDI Bulk-Dump utility.

Use the EDIT key to leave the LIVE mode and enter the EDIT mode. After editing, use the EDIT key again the return to the LIVE mode.

## SONG MENU, the Top-Level SONG-EDIT screen
### - this is the Entry screen for the Zboard Editor -

| Up | Softkey#1 | Softkey#2 | Softkey#3 | Softkey#4 |
|---|---|---|---|---|
| | SONG #01: | GUITAR | WRITE | UTILITIES |
| Down | | | | |
| | FRETBOARD | SENSORS | RESPONSE | SHOWALL |
| EDIT | Softkey#5 | Softkey#6 | Softkey#7 | Softkey#8 |

This is the top-level edit screen, which displays sub-menus for the various programmable features for each Song.

A **Song (or "Kit")** *consists of:*
1) One or more Fretboard Zones with all of their programmed settings.
2) Assignments for the Sensors.
3) Physical response settings for the Sensors.
4) A Tuning for the fingerboard keys and Open-Strings, and settings for Triggering modes.
5) A setup for the metronome.

## SONG-MENU Sub-Menus:

**Press Sotkey#1 to select the Song-number and use the Up/Dn arrow keys to change number**

**NAME-EDIT:** Press SoftKey#2 above the name of the SONG to enter the Name-Edit screen.

**WRITE:** Takes you to the Write screen so that you may save your current setup.

**UTILITIES:** enters the Utility menu to edit a variety of objects.

**FRETBOARD:** enters the Fretboard-Zone menu to set up the fingerboard. All of your settings can be made into 32 independent fingerboard Zones.

**SENSORS:** enters the Sensor menu to set up the Pads/Triggers/Joystick MIDI Performance configuration.

**RESPONSE:** enters the Response Editor to set up the physical response for all of the Sensors and the Fingerboard.

**SHOWALL:** Press Softkey#8 to enter the SHOWALL screens for viewing groups of settings at a glance.

## SONG-MENU\ NAME-EDIT screen

The top-left of the screen shows the Song number followed by its name. By placing the cursor over the song number and using the joystick or Up/Down buttons you may scroll through the Song Banks without going back to the LIVE menu to make your selection.

*To enter a new Song name:* Place the cursor over the name field using the softkey#2 button above the name. Use the Joystick or Up/Down buttons to enter a character, then use the soft keys to the left and right of the "CURSOR" message to move the cursor over to the next character position.

| Up | Softkey#1 | Softkey#2 | Softkey#3 | Softkey#4 |
|---|---|---|---|---|
| **Down** | SONG:01 | GUITAR | | |
| | | <--------------CURSOR-----------> | | |
| **EDIT** | Softkey#5 | Softkey#6 | Softkey#7 | Softkey#8 |