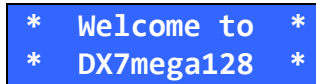


Yamaha DX7mega128 Expansion User Guide



1: Introduction

The DX7mega128¹ is essentially a "lite" DX7 SuperMAX+ type expansion. It provides the following new features:

MEMORY EXPANSION

- 4x memory expansion: There are now 128 patches² (what Yamaha calls "voices") arranged in 4 banks of 32. Each patch is directly selectable by standard MIDI Patch Change messages.
- The Function Settings can be saved as a single global value or on a per-patch basis.

GLOBAL PARAMETERS

- MIDI Transmit Channel: You can set the MIDI OUT channel from 1 to 16. (MIDI IN is already settable in the Yamaha factory DX7 v1.8 firmware using button Function 8).
- Local On/Off: You can set whether the local keyboard sounds the internal FM sound engine (or not).
- MIDI Receive in OMNI mode (receives on any/all channels).

PATCH PARAMETERS

- Programmable Keyboard Zone: Each patch can utilize a settable active keyboard zone (low key to high key) within which the local keyboard sounds the internal FM sound engine per patch.
- Programmable Patch Volume: Each patch can utilize a volume to even out the DX7 levels when changing patches.
- Voice Stacking: You can stack and detune two or four voices of the same patch. You then have a choice of 16x1, 8x2, or 4x4 polyphony. The detuning can provide chorus effect and/or chording and/or octaves (for example).

BUG FIXES

- Includes the fixes for the DX7 Fixed Frequency table bug and also includes the faster boot.
- [v1.30+] Hardware-selectable MIDI Velocity Offset fixes the stock DX7 velocity issue.

¹ The information provided in this document is intended for informational purposes only and is subject to change without notice. Information may be changed or updated without notice. We may also make improvements and/or changes in the product(s) described in this information at any time.

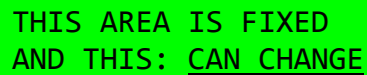
² In this document the term "patch" is used to denote a programmed sound. For some unknown reason back in the 80's, Yamaha called these "voices". The typical use for "voices" these days is to indicate the degree of polyphony (how many keys you can hold down at once and get sound for).

Installation

You are looking at the wrong document. Please refer to the **DX7mega128 Installation Guide** available on the www.musictechnologiesgroup.com website.

Manual Conventions

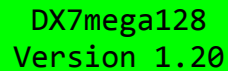
Regarding the LCD, this manual shows the variable part of the LCD content using an underline. The DX7 itself is not able to underline more than one character, but this convention makes it easier to visualize the changing part of the LCD versus the fixed part.



THIS AREA IS FIXED
AND THIS: CAN CHANGE

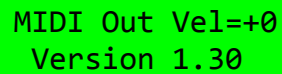
Version Check

You can check the version of your DX7mega128 by pressing the brown FUNCTION key and while holding it down press and hold 16 and 32. You should see a version message such as:



DX7mega128
Version 1.20

or

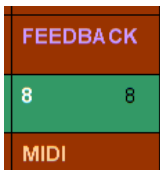


MIDI Out Vel=+0
Version 1.30

Press the green INTERNAL button twice to escape.

Updates to MIDI (Function Button 8)

The following items are available on button #8 in Function mode:



MIDI Ch In = 1

Settable MIDI Receive channel, or OMNI mode

Local Control=ON

Enable/Disable keyboard play of DX7 sounds

SYS INFO UNAVAIL

Enable/Disable System Exclusive

Recommended Initialization

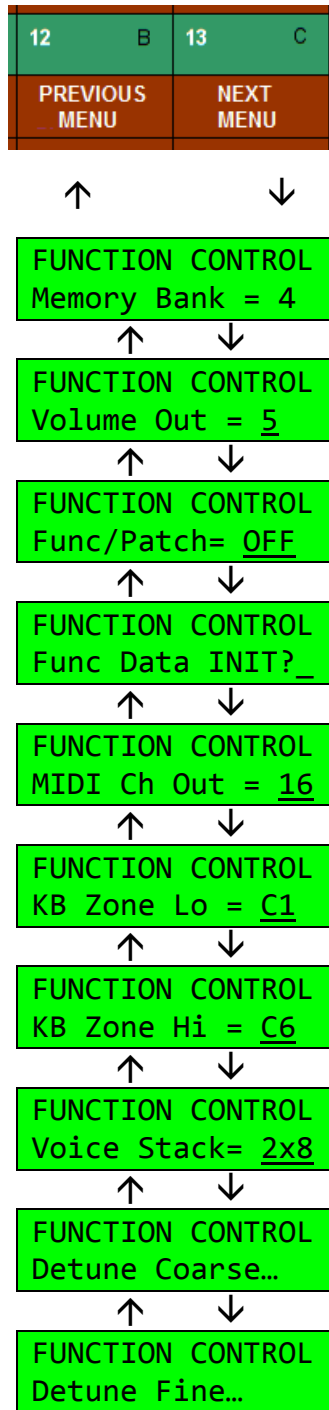
After installing the board, or any time the battery is changed, there can be some random data in the DX7 RAM. Check and set the Function parameters and load some patch data to begin using your new DX7mega128:

1. Turn the Internal Memory Protect OFF to enable saving settings and data.
2. Set the expander "Function/Patch" value OFF so that one global set of function data is used (for now).
3. Initialize the expander Function data using the "Function INIT?" Menu option (choose Yes).
4. Set the expander active Memory Bank to 1.
5. Load a set of patches from cartridge or system exclusive. If the latter is used, then Sys Info must be set to Available first.

Steps 1 and 5 are standard DX7 user manual stuff. For the other steps you need to **read this entire manual** anyway, so take the time to do that and make note of how to perform steps 2, 3 and 4. And if you haven't read the Yamaha DX7 user manual, well ... consider it.

2: Operation

All of the new operating parameters are accessed using button **12** and/or button **13** in Function mode. These two buttons take you up and down the list of new Function parameters and the menu wraps around if you press the same key repeatedly. The DX7 remembers the last activated Function parameter and it is “live” on the panel (data slider and Yes/No buttons) even in normal “play” mode.



2.1 Memory Bank Selection

Recall that the DX7 has 32 internal patches accessed by pressing the INTERNAL button and then one of the patch numbers 1 through 32.

The DX7mega128 has four banks of these to make the 128 patches:

Bank 1	Patches 1 to 32	=	MIDI patch numbers 1 to 32.
Bank 2	Patches 1 to 32	=	MIDI patch numbers 33 to 64.
Bank 3	Patches 1 to 32	=	MIDI patch numbers 65 to 96.
Bank 4	Patches 1 to 32	=	MIDI patch numbers 97 to 128.

To select a Bank and patch from the front panel, press Function button to activate Function Control. Using button 13 (Next Menu) or button 12 (Previous Menu), locate the menu item Memory Bank:



FUNCTION CONTROL
Memory Bank = 4

You can then select which bank is active using the Data Slider or + / - buttons. The **next** patch you select will come from the memory bank you chose. Even when you return to play mode (say, by pressing INT and/or a patch number), this function remains active so you can continue to change banks with minimal button pressing. Please also see the **caveat** below.

A convenient way to select banks from your now expanded memory is to leave the most recently selected MEMORY BANK button "live" in Function mode. When you return to "play" mode the data entry control remains active on the memory bank parameter thus making easy to access all 128 voices.

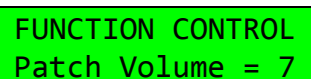
When you select a patch via the front panel, its patch number (1 through 128) will be transmitted on the DX7's MIDI OUT.

Another way to select patches is through MIDI IN. The patch numbers correspond to the patch numbers 1 to 128 in the table above. That is, on receipt of a MIDI Program Change message on the correct MIDI channel, the correct bank and patch will be activated. **Note that if you have cartridge installed it will be played in place of Bank 2.**

Each bank must be saved or loaded individually using a cartridge or over MIDI.

CAVEAT: *Keep in mind that this operating rule is the same for any function button. That means for example, if the most recently selected Function is Volume, you could accidentally turn the sound off without knowing the reason.*

2.2 Patch Volume (can be saved per-patch)



FUNCTION CONTROL
Patch Volume = 7

The overall volume can be set to a value from 0 to 7. This allows you to trim the patch volume levels for the appropriate impact when playing live or switching from patch to patch.

This data can be saved per-patch if the Function Data Per-Patch setting is turned on.

2.3 Function Data: Per-Patch or Global

This setting determines whether or not there is one global set of Function Parameters or if the Function Parameters are set on a per-patch basis.



FUNCTION CONTROL
Func/Patch= OFF

The traditional setting for the original DX7 is that there is one global set of Function Parameters. You can continue this tradition by setting Func/Patch (function per patch) to OFF. If you would prefer to save Function data with each patch, then set Func/Patch to ON.

In addition to the regular DX7 function parameters

- Poly/Mono, Portamento, Aftertouch, Pitchbend, Modulation Wheel and Breath Controller

the new parameters

- Volume, Active Keyboard Zone and Voice Stacking

are saved with each patch when this is enabled. If you don't utilize Function/Patch, then the Volume setting isn't really of much use since it will be global and there is already a dedicated analog Volume slider on the DX7.

2.4 Function Data: Initialization

This sets the Function Data to a known good state. This should be performed after board installation and whenever dubious function data is found (such as might happen after loading from a ROM or RAM cart or Sys Ex receive or changing the battery)

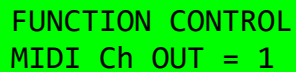


FUNCTION CONTROL
Func Data INIT? _

To initialize the Function Data, simply locate this menu item and press the +/Yes button.

2.5 MIDI Transmit Channel (global parameter)

All of the MIDI settings are global, in that they are NOT saved with a patch. They are saved overall for the synthesizer.



FUNCTION CONTROL
MIDI Ch OUT = 1

The MIDI note data, patch changes, etc. will be transmitted on the MIDI Channel specified here. Using the Data slider or the Yes/No buttons, select the MIDI OUT channel you want, the range is 1 to 16.

Note: The MIDI IN channel is established via the standard DX7 Function button 8.

2.6 Active Keyboard Zone (can be saved per-patch)

This function specifies the zone or region of the keyboard that will control the DX7 by setting a Keyboard Low key and a Keyboard High key. It uses two screens:

```
FUNCTION CONTROL  
KB Zone Lo = C1
```

```
FUNCTION CONTROL  
KB Zone Hi = C6
```

The first screen sets the lowest note that will activate the internal sound. The second screen sets the highest note that will activate the internal sound. The range is from C-2 to G8.

The value is chosen using the Data Slider or the + / - buttons.

Played notes outside the Active Key Zone will still be sent out on the MIDI transmit channel.

This data can be saved per-patch if the Function Data Per-Patch setting is turned on.

2.7 Voice Stack and Detune (can be saved per-patch)

The last three screens are used to set the Voice stacking mode and detuning of the extra voices.

DX7mega128 allows you to stack a DX7 patch in modes of 16x1 (standard, no stacking), 8x2 or 4x4. Each of the extra voices can have its pitch offset. Thus you can create not only chorus/flange type effects, but also octave and chording.

```
FUNCTION CONTROL  
Voice Stack= 2x8
```

To utilize this feature, the first step is to select which Voice Stack mode you would like. There are up to three additional voices, or copies of the patch, available. The additional voices are called "2", "3" and "4". You access each in turn by pressing the same function button over and over again.

If you are in mode 16x1, then only the original Voice1 is used. All Detune settings are ignored.

If you are in 8x2 then the original Voice1 and Voice2 (coarse and fine) are used. The Detune settings for 3 and 4 are ignored.

If you are in 4x4 then all voices tunings are used.

Stack Voice Coarse Pitch: Here you can set the coarse pitch for each of the three additional voices in semitones from -24 to +24. The modifiable coarse value is the whole number portion to the left of the decimal point

```
Voice Stack Mode  
COARSE 2=-12.00
```

```
Voice Stack Mode  
COARSE 3=- 5.00
```

```
Voice Stack Mode  
COARSE 4= 7.00
```

Stack Voice Fine Pitch: Here you can set the fine pitch for each of the three additional voices in cents from .00 to .99. The modifiable fine value is the fractional portion after the decimal point.

```
Voice Stack Mode  
FINE 2=-12.00
```

```
Voice Stack Mode  
FINE 3=- 5.00
```

```
Voice Stack Mode  
FINE 4= 7.00
```

If you want a negative fine adjustment alone, start with -0.00 and then adjust the Fine setting.

This data can be saved per-patch if the Function Data Per-Patch setting is turned on.

MIDI Note-On Velocity Fix [v1.30+ only]

The stock DX7 keyboard has a restricted range on the maximum MIDI Note-On velocity it transmits. If you strike a key extremely hard you can get a maximum velocity out of 118 (\$76 hex). A hardware fix has been included that allows the player to obtain full MIDI Note-On velocity of 127 (\$7F hex) without fear of damaging the keyboard.

The DX7mega128 circuit board has a switch, S1, that allows you to change between default (0) and full velocity (+3) operation. This switch is not intended to be changed on-the-fly with the power on, but you can try it for an A:B comparison **if your patches are backed up**.

When the switch is to the right, the setting is +0 (stock). When the switch is to the left, the setting is +3 (enhanced). Remember, you can verify this setting by doing a Function+16+32 version check.

*Enjoy your updated DX7!
See the MTG web site for more great vintage synth and drum machine goodies.*