

# TECHNICAL NOTE

Date March 2013 (rev4 May 21)

ref TN295

Raised by: PB/TC



Distributed to : As Required

Soundtracs - Digico(UK) Ltd. unit 10 Silverglade Business Park Chessington Surrey KT9 2QL England  
Tel: +44 1372 845600 Fax: +44 1372 845656 email: [support@digiconsoles.com](mailto:support@digiconsoles.com)

## SD7 CONSOLE

### INSTALLATION OF WAVES ® OPTION

**Important Note:** These instructions are a guide to fitting the Waves option to an SD7. This option is normally supplied factory fitted and is not considered a user installed option. This note is for the use of factory approved technicians only. The USB key included in the kit includes these install instructions and the operation manual.

Read the instructions carefully before starting, and leave yourself plenty of time to perform the upgrade  
You will need to have the following tools to hand: Pozi-screwdriver #2 & M1.5 Hexagonal driver (Allen Key)

#### **Before proceeding, first check the version of software and computer hardware in use.**

Confirm the version of software presently running on the mixer. See master screen when the mixer is running. If the existing mixer system is V760 (or below) and it is not intended to purchase Core 2 be aware V760 does not support current versions of Waves and the option should NOT be fitted. Contact local support for advice.

Current mixer versions support Waves only on a separate external control computer. Legacy internal Waves operation using versions up to V929 only is no longer supported by either Digico or Waves.  
If new drive is required (see below) this will be set up as Core 2 and external Waves only (V987+).

Older computers hardware need to be updated for use with Waves. However this should ONLY be done if required according to the following checks. If required, additional parts will require to be ordered from the factory (if not ordered alongside the Waves installation kit)

Older mixers can be checked in software (in Windows Explorer and under Computer system settings).  
What size is the D:\ partition? If greater than 4Gb capacity and the RAM is 1Gb, the mixer has up to date hardware and the (flash) hard drive does NOT require to be changed. If either is less, then the updated hardware must be available to be installed before proceeding.

These revised components were generally used after 2012 and so only the oldest systems will require updated hardware. If required, follow the notes the regarding changing the drive and RAM in older mixers.

Important Note: If the Hard drive is changed, any software option passwords will require to be re-authorized and time should be allowed to obtain these before the mixer is to be used.

#### **Next check the version of engine of PCB in use**

Refer to the pictures on page 4. Is the engine PCB a P16001 or PA16200?

If fitted with a P16200, the engine normally does NOT require to be removed or moved forward in order to connect the Waves IO cable, which can be installed with the engine in place.

If you are unsure about any part of the upgrade procedure, seek advice before proceeding.

You should also have available:

- 1) Authorisations for Waves Multitrack, Superack, Waves Studio or a PC driver for recording at least, as obtained from Waves (<http://www.waveslive.com/html/soundgrid-for-digico.aspx>) This will be required to use the installation.
- 2) To fully test Waves functionality, you will also require a compatible PC to run the Waves software required, also usually a Soundgrid Server, a Waves approved 1GB Network switch and 3 CAT5e/CAT6 network cables. Details of approved switches and appropriate Cables can be found at <http://www.waveslive.com/html/soundgrid-switches.aspx>
- 3) If the drive is changed you will also require an overview screen to be available to set this up if required.

## Ensure you have taken appropriate anti-static precautions

The kit includes a disposable wrist strap and heel strap. Ensure you wear both. The wrist strap should be connected to the chassis of the engine whilst you work on it, in or out of the mixer. The heel strap ensures the skin of your leg is connected to the floor and not isolated by a rubber soled shoe.

Avoid working in areas with synthetic floor coverings or carpet, especially polypropylene material, as opposed to natural materials such as solid wood or wool. Ideally work at a proper workbench with ESD safe features, such as a metal frame. Before work, try to discharge yourself into a mains earth fitting, water pipe etc.

This is important as parts of this kit are static sensitive and even if any damage is not immediately obvious, so called "latent damage" can occur, where a device may be partially degraded yet continue to perform its intended function. However, the operating life of the device may be reduced dramatically, leading to premature failure.

If you are unsure about any part of the upgrade procedure, seek advice before proceeding.

### Before you start:

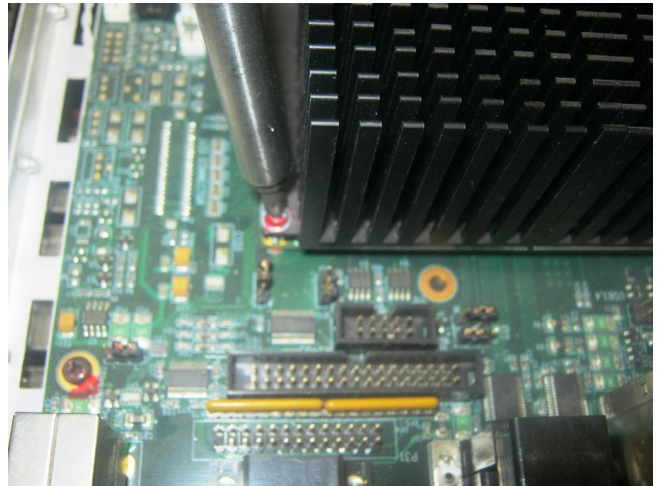
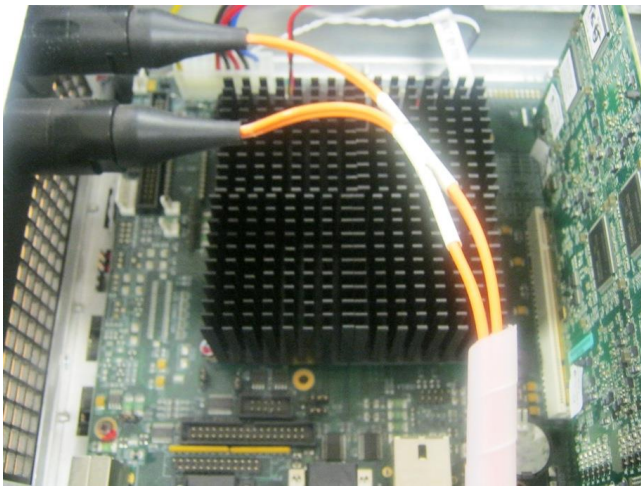
Shut the SD7 down, switch off, and remove power leads. Remove all connections [MADI, MIDI, Audio, , VGA etc]

Remove the Engine Retaining Bar Screws above the Engine and Unscrew the Front Panel Screws/Thumbscrews. Slide the Engine out slowly and unplug the 6 pin Power connector and the 3 x 64way Ribbon Cables.

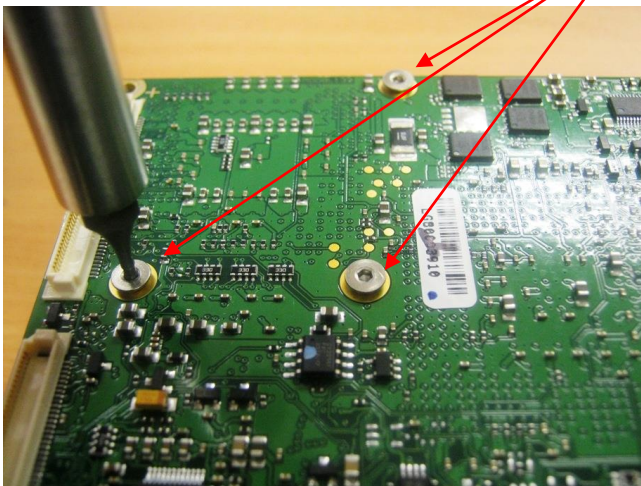
Unscrew the lid of the Engine and Remove.

Take the engine tray to a suitable workspace (observe ESD precautions)

If required to update the computer RAM, remove the four securing screws for the CPU assembly and remove CPU assembly.

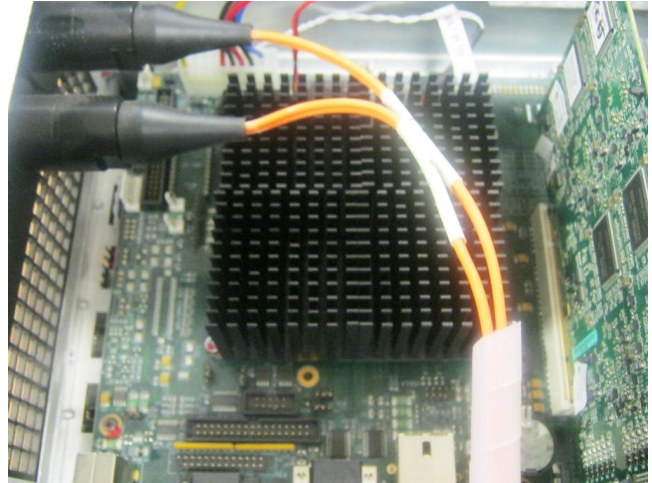


Remove the three hex drive heat sink securing screws and **THROW THEM IN THE BIN – DO NOT RE-FIT THESE.** Lift off the heatsink to expose the RAM module.



Remove the RAM module by unlatching the clips at each end of the RAM socket and replace it with the RAM supplied in the Waves kit, making sure the RAM is fully secured behind the retaining clips.

Fit the CPU Assembly back to the PC Motherboard and then re-fit the heatsink.

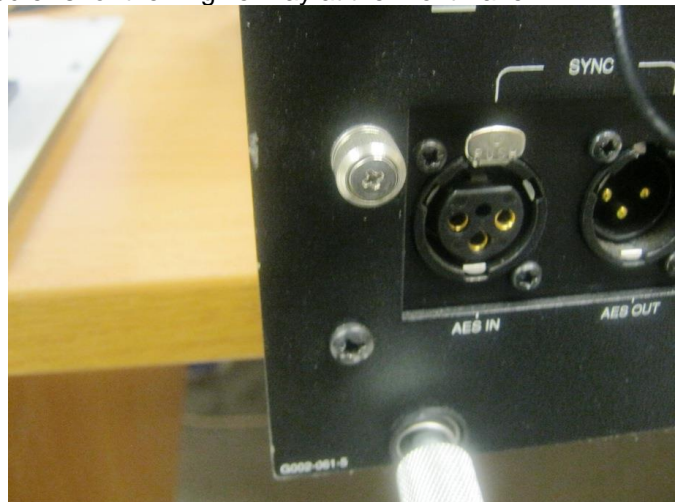
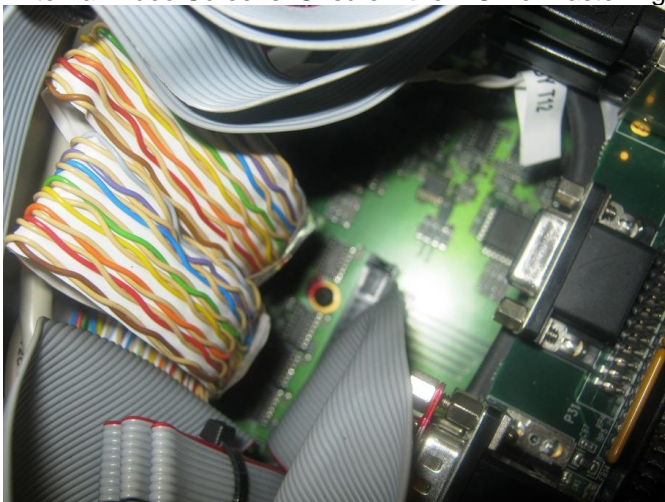


Remove the Flash drive and replace with the Flash drive supplied in the kit. The new Flash drive is supplied with a power cable. Check connector orientation when unplugging and replugging.

Remove the Fan Metalwork 6 Silver Fastening Screws, remove the metalwork and fan assembly, unplug the 2 pin IDC from the Power Distribution PCB within the Engine.



Unplug the 40 way Ribbon Cable and 2 x 16 way Twisted Pair Ribbon Cable from the DSP PCB, just under the External Video Screens. Unscrew the 2 Silver Fastening Screws for the Engine Tray at the Front Panel.

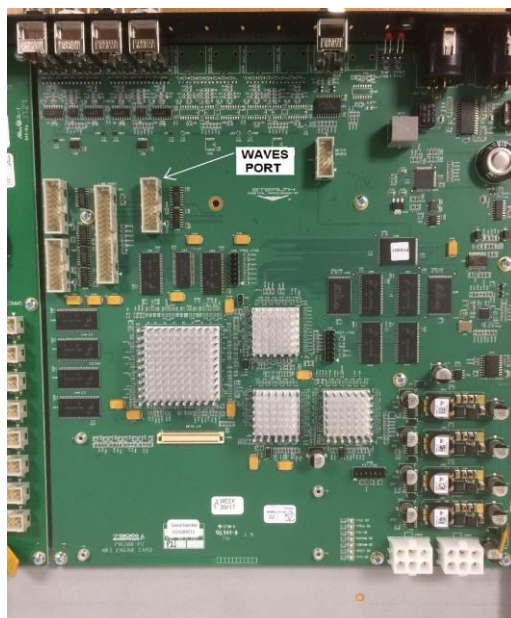


Unscrew The 2 Silver fastening Screws on the Engine Tray Inside the Engine and slowly withdraw the Engine Tray, unplug the Optic Cables and Power Cable to the DSP PCB.



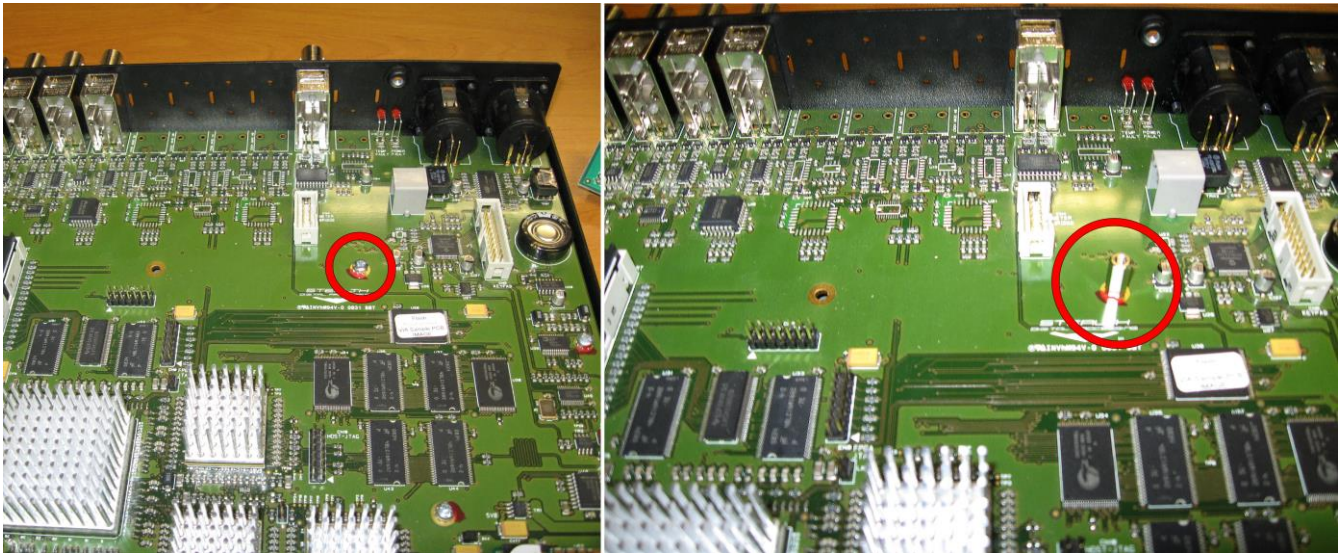
Note the following pictures are for illustration only and show a 2 port only engine in a different chassis

**Note:** The Waves interface connector is not required for (and cannot be fitted to) mixers shipped after November 2017. These have a P16200 processor PCB with the waves interface connector built in.

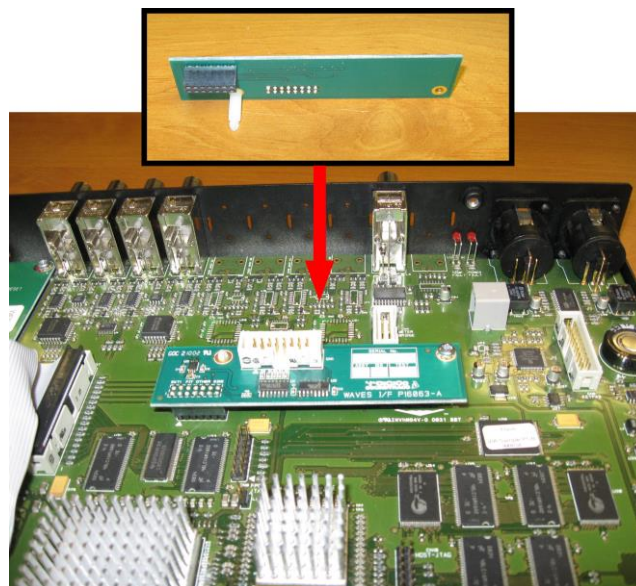


Refer to the following notes for earlier build engines then do not include this Waves port.

Remove the screw indicated on the Engine Tray and replace with the threaded pillar supplied in the Kit



Fit the nylon mounting post to the Waves interface PCB and then the PCB to the FPGA board and secure to the threaded pillar using the M3x6 poz pan zinc sp screw provided.



Fit one end of the 16way Twisted Pair Ribbon Cable to the connector on the P16063 PCB just fitted.

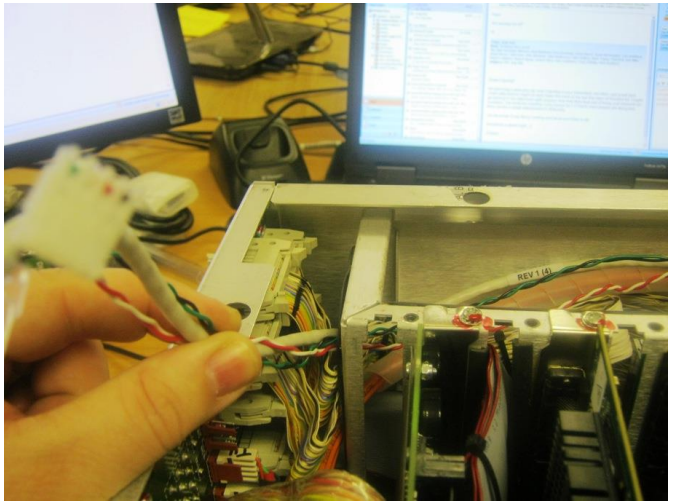
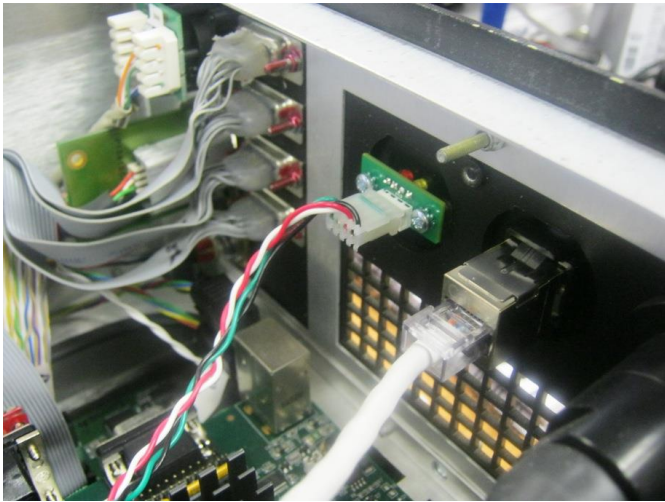
Refit the Engine Tray back inside the Engine, reverse process to how it was taken out.  
Refit Power and Optical Connectors.

The other end of the 16way Twisted Pair Ribbon Cable should be left hanging from the rear of the Engine.  
Once fully fitted and screwed in place reconnect the 40 way Ribbon Cable and 2 x 16way Twisted Pair Ribbon Cable to the DSP PCB, making sure that the 16way cables go to the correct connector – Video and Local I/O.

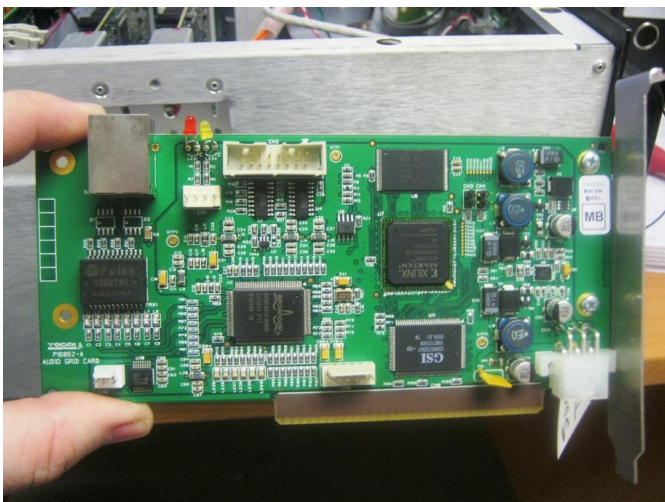
Remove the blanking plate fitted for the second Optic Loop and fit the Waves plate.



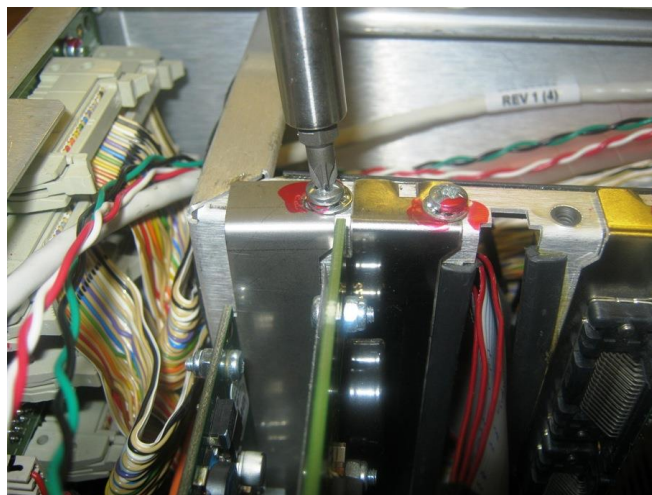
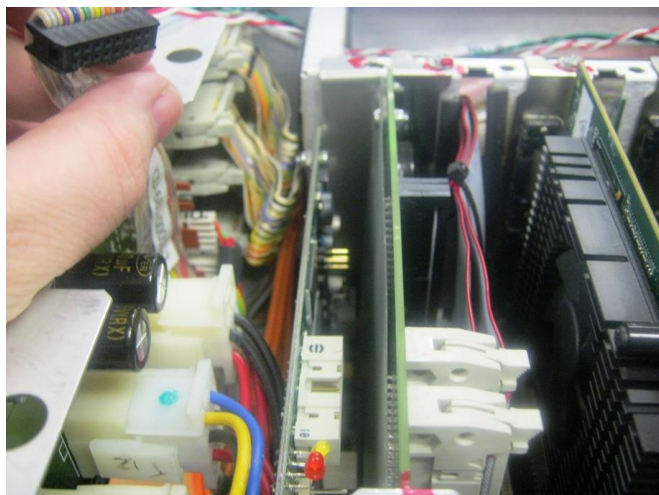
Connect the 4 pin IDC cable and Network Cable to the Waves Plate and run the cables around the edge of the Engine, next to the Graphics Cards and Ramstore PCB.



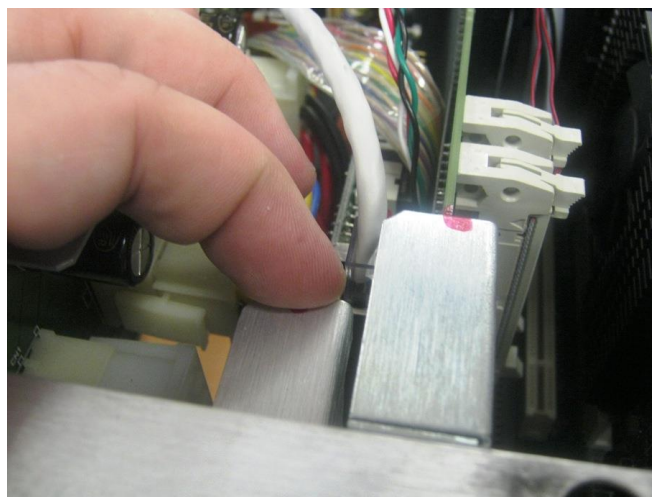
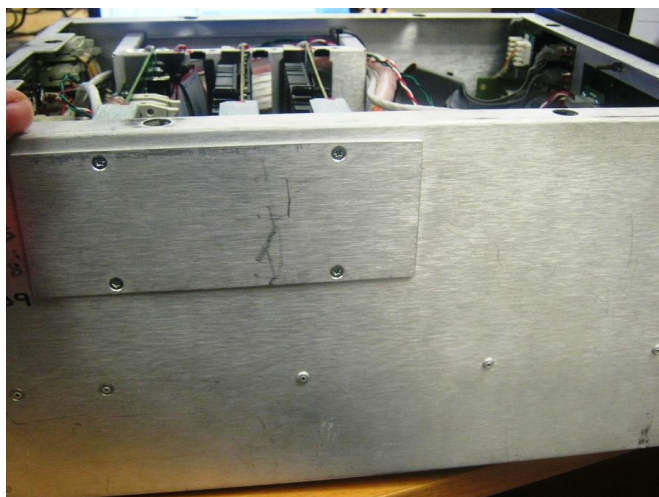
Take the Waves I/O card PA16062 PCB and fit to the last ISA Slot within the Engine.



Feed the 16way Twisted Pair Ribbon Cable up behind the newly fitted Waves PCB and plug into the socket. Connect the 4 pin IDC and Network cable also to the card. Then fit the Comp screw on the Waves Bracket to hold it in place.



Remove the Side plate to the Engine and fit the L shaped bracket to secure the PCB from movement.



Once complete, refit Side Plate and Fan Metalwork, make sure that the Power for the fan on the IDC is connected back to the Power Distribution PCB and no cables can become caught by the fan.



## THE FOLLOWING SOFTWARE ADJUSTMENTS ARE REQUIRED ONLY IF THE DRIVE HAS BEEN CHANGED

### Set Date and Time

Refit the Engine to the SD7 Console, connecting the Power and Data looms. Switch on the console. It will boot from the new Flash Drive and will stop in Windows.

Double click the time (clock) in the Windows Task Bar to open the **Date and Time** Control Panel. Set the correct Date and Time. Check that Internet Time Synchronisation is disabled. Close the Panel.

### Disable Write Caching

Right Click on the Start Button and choose Explore.

Right Click on the C Drive **OS(C:)** and choose Properties.  
Select the Hardware Tab, and press the Properties Button  
In the window that opens, select the Policies Tab, and ensure that the “Enable write caching on the disk” option is **not** ticked. If the option is greyed out (even if ticked) then leave it as it is.  
Press OK to close the window and confirm the changes.

You will now have to restart the console. When it restarts, it will stop in Windows.

### Update Console Firmware

If the new drive runs a version newer than that which was installed be the associated firmware may require to be updated to match.

Please note that in the unlikely event that any of the serial devices (worksurfaces and local I/O) fail to update correctly, you may be required to reprogram them using an ICD2 programmer. Please consult your local DiGiCo distributor for more information.

Quit BOTH engines to Windows

On one engine Right-Click on the Start Menu, and choose “Explore”.

In Explorer, navigate to D:\SD7\UpdateHardware.exe and run the UpdateHardware.exe application.

For each device, you will see the current running version in the “running” column, with the new version in the “available” column.

Perform each update in the following order, and wait for the green tick to disappear indicating that each update has finished before continuing with the next one:

Assuming BOTH engines have replacement drives, the engine updates should be performed on the first engine

Host

FPGA

Effects

Device 0 (Centre).

Device 1 (Right).

Device 2 (Left).

Device 3 (Local IO)

Device 4 (switcher

Device 5 (timecode)

**Do not update any codes not listed in the update hardware program above.**

**Do not attempt to update Rack code.**

Close UpdateHardware

Assuming BOTH engines have had replacement drives, the engine updates (ONLY) should be performed on the second engine

Host

FPGA

Effects

Close UpdateHardware

## **Enable Ready On**

Shut down and power cycle the console – it will stop at the Windows desktop

Assuming BOTH engines have had replacement drives, the following settings should be performed separately on the two engines.

Right-Click on the Start Menu, and choose “Explore”.

Navigate to C:\Program Files\Ardence\ReadyOn, and then run ReadyOn.exe

Close any Explorer windows that are open behind the ReadyOn window, so that the only window open on the screen is the ReadyOn window.

Press the Flush Button.

In the “Command or Application to run at ReadyOn Boot” box, type the following **D:\SD8\SD8.exe**

Press the Image Button. The screen should show the System Hibernating.

NOTE: If there is an error message at this point, OK the error, close the Ready On program and restart the console using the Windows Start button menu. The console will restart and then halt at the Windows desktop. Now repeat the above procedure.

Once complete, power the console off and then back on.

Confirm the mixer program launches at start up.

## **SOFTWARE SETUP NOTES**

Enable Waves in the Console options page and restart.

The Waves IO port will appear as an option and can be added in the audio IO page.

The option will also activate external Waves control integration features allowing the Waves system to synchronize features such as snapshot firing and the session load and save, via Ethernet.

Connect both the Waves port and the console network port to the Waves compatible network switch.

Ensure the Waves computer is on the current version compatible with the mixer version installed on the mixer. Refer to your Waves Central account to download and install this, following instructions included from Waves.

The Waves port will appear as “Digico IO” in the Waves inventory. Refer to Waves instructions for the relevant Waves software for operation of the integration features.

If required the PC waves audio only driver can be downloaded from Wave Central once an account has been created. This can be created at no initial cost by using the serial number on the Waves licence card included in the kit.

For all further information on the operation of the Waves software please refer to Waves Support