

Assembly Instructions Triton Enclosure for Poseidon With Data Acquisition

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V0.9

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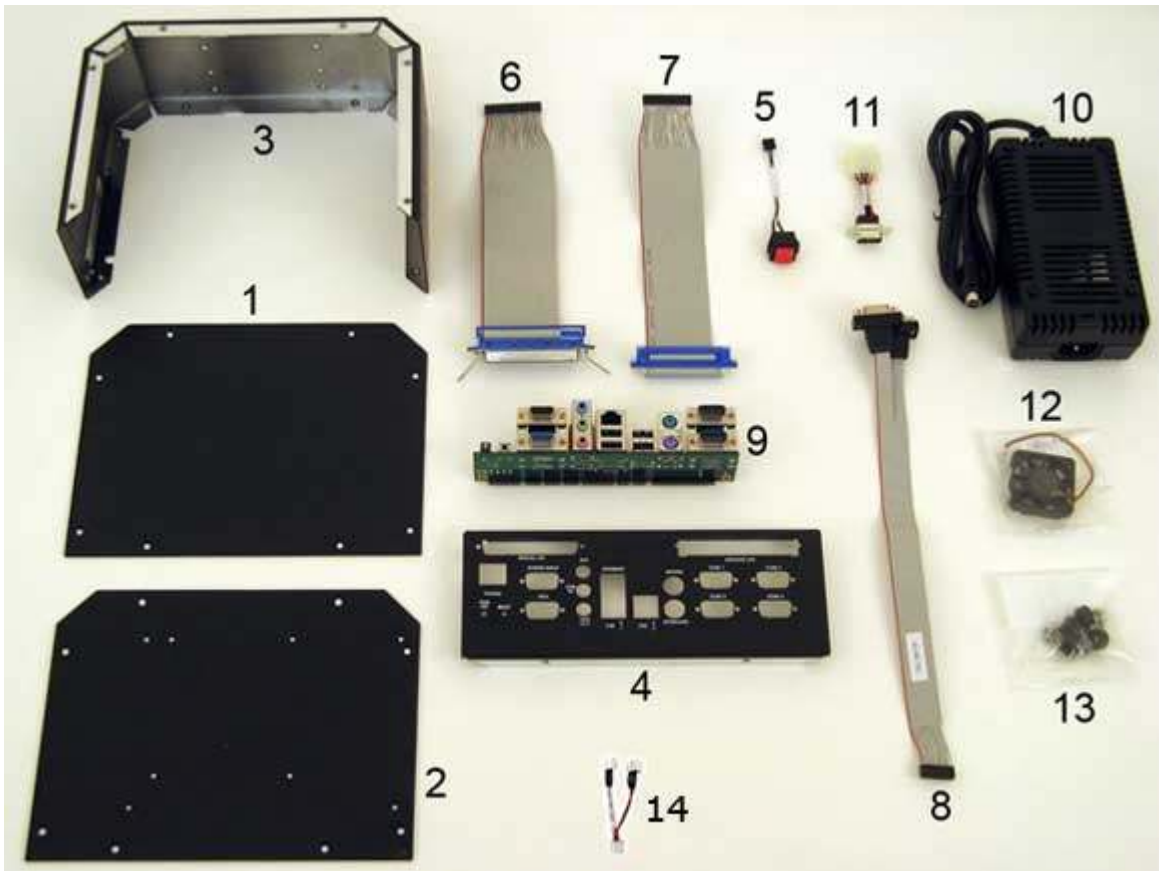
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This document describes how to assemble a Triton enclosure with a Diamond Systems Poseidon EPIC SBC with data acquisition. The Triton Enclosure will hold the Poseidon SBC, the Poseidon Panel I/O Board, an optional hard disk drive and up to 3 PC/104-Plus expansion boards.

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Triton Enclosure Kit Contents



The Triton Enclosure Kit comes with all the elements necessary to build a complete functional computer system based on the Poseidon EPIC Single Board Computer. The only additional item required is the Poseidon board itself. The Kit includes:

ITEM	DSC PART NO.	DESCRIPTION
1	7812102	CASE TOP, TRITON_STANDARD
2	7812101	CASE BOTTOM, TRITON_POSEIDON
3	7812000	CASE BODY, TRITON
4	7812300	FRONT PLATE,TRITON,POSEIDON (with data acquisition)
	7812050	CF COVER PLATE, TRITON (not shown)
5	6981094	Cable - Poseidon Utility with Power Switch
6	6982020	Cable - Analog I/O (2mm, 2x20 IDC40 to Centronics 50 connector)
7	6982021	Cable - Digital I/O (2mm, 2x17 IDC34 to DB37 connector)
8	6981081	Cable - Dual Serial COM3/COM4 (2mm, 2x10 crimp to 2x DB9M)
9	PNL-PSD-01	Poseidon Panel I/O Board
10	PS-5V-04	AC power supply
11	6981093	AC Adapter to DB9 power transition cable
12	6801021	Fan Assembly Kit
13	6801022	Triton Enclosure Hardware Kit
14	6981098	Triton fan Y-Cable

Triton Hardware Kit

The Triton Hardware Kit contains all the components for assembling boards to the Triton Enclosure Base Plate and for assembling the enclosure.

This hardware kit includes the following items:

QTY	DSC PART NO.	DESCRIPTION
18	6810061	FHMS, Phillips, 6-32 UNC x 1/4", Stl/Zn (RoHS) (sheet metal assembly)
8	6843014	FF spacer, 4-40 x 14mm, (RoHS) ALUM hex
8	6810046	FHMS, 4-40 x 1/4, Phillips, Stl/Zn (RoHS) (board assembly)
4	6890261	(RUBBER FEET) Threaded Rubber Bumpers, Recessed, 1/2"x1/4", 6-32
6	6810041	Screw, pan head phillips, 4-40 x 1/4 (PC/104, panel board assembly)
16	6850120	Jack Screw 3/16" hex x 3/16" L



Triton Enclosure hardware kit (new)

Triton Enclosure Hardware Kit #6801022
Components, left to right:

- ◆ 3/16" Jack Screws
- ◆ 14mm spacer
- ◆ #4 Flat head screw
- ◆ #4 Pan head screw
- ◆ 6-32 Flat head screw

Triton Fan Assembly Kit

The Triton Enclosure Kit contains the parts to install an optional cooling fan in the Triton Enclosure. The cooling fan is required in the event that the ambient operating temperature surrounding the Triton Enclosure exceeds 70°C for the 1.0GHz Poseidon board or 50°C for the 2.0GHz Poseidon board.

This Fan Assembly Kit includes the following items:

QTY	DSC PART NO.	DESCRIPTION
1	6880024	5v cooling fan
4	6810048	FHMS, 4-40 x 3/4", Phillips, Stl/Zn (RoHS)
4	6820041	4-40 HEX Nut, Nylock, Stl/Zn (RoHS)



Assembly Steps

Before assembling the system, be sure that the Poseidon SBC board is configured properly. Refer to the Poseidon User Manual or FastStart Guide for configuration options.

1. Attach Spacers to Base Plate

Install qty. 8 14mm F/F hex spacers to the base plate with 8 of the 4-40 x 1.4 Philips flat head screws. The screws are inserted through the bottom (painted) side of the front panel into one female end of the spacers. The spacers mount on the aluminum (unpainted) side of the base plate.



Inside of base plate showing 14mm F/F spacers installed

2. Remove Poseidon Standoffs

The Poseidon SBC is shipped with four standoffs installed at the four mounting holes, each secured with a 7mm standoff at the top of the board. Remove the standoffs provided with the Poseidon board by unscrewing the four 7mm standoffs at the top four corners of the board. Save the four 7mm standoffs for the next step.

3. Install IDE Flashdisk or IDE Cable (Optional)

You can install either an IDE flashdisk module or an IDE cable for a hard drive onto the CPU. Since there is only one IDE connector – CN2, you cannot install both at the same time directly on the board. To use more than one IDE device on a CPU, please see the Poseidon FastStart Guide for configuration information.

3.1 Flashdisk Module

If you are installing a flashdisk module onto the Poseidon SBC board, install it now. The flashdisk module comes with its own hardware kit, including qty. 2 #2-56 pan head screws, one #2-56 1/4" spacer, and one #2 washer. This hardware is used to hold the flashdisk onto the board and prevent it from coming loose from vibration. Make sure to set the master/slave jumper to the master position since this is the only IDE device in the system.



Flashdisk module with hardware



Hardware mounted onto flashdisk module

First attach one screw through the top of the flashdisk and fasten the washer and spacer on the other side. Note the position of the washer and spacer in the right photograph above. Both the washer and spacer are required to maintain the proper mounting distance. Next install the flashdisk assembly onto CN2 of the Poseidon SBC. Insert the remaining screw through the bottom of the CPU board.



Flashdisk mounted onto Poseidon SBC

3.2 IDE Drive and Cable

If you are installing an IDE drive in the Triton enclosure, attach the IDE cable (DSC #6981004 or equivalent, sold separately) onto CN2 of the CPU now. Install it so that it hangs out over the edge of the board. Installation of the hard drive onto the Triton Enclosure is explained in Step 6 below.

4. Attach Poseidon Board to Base Plate

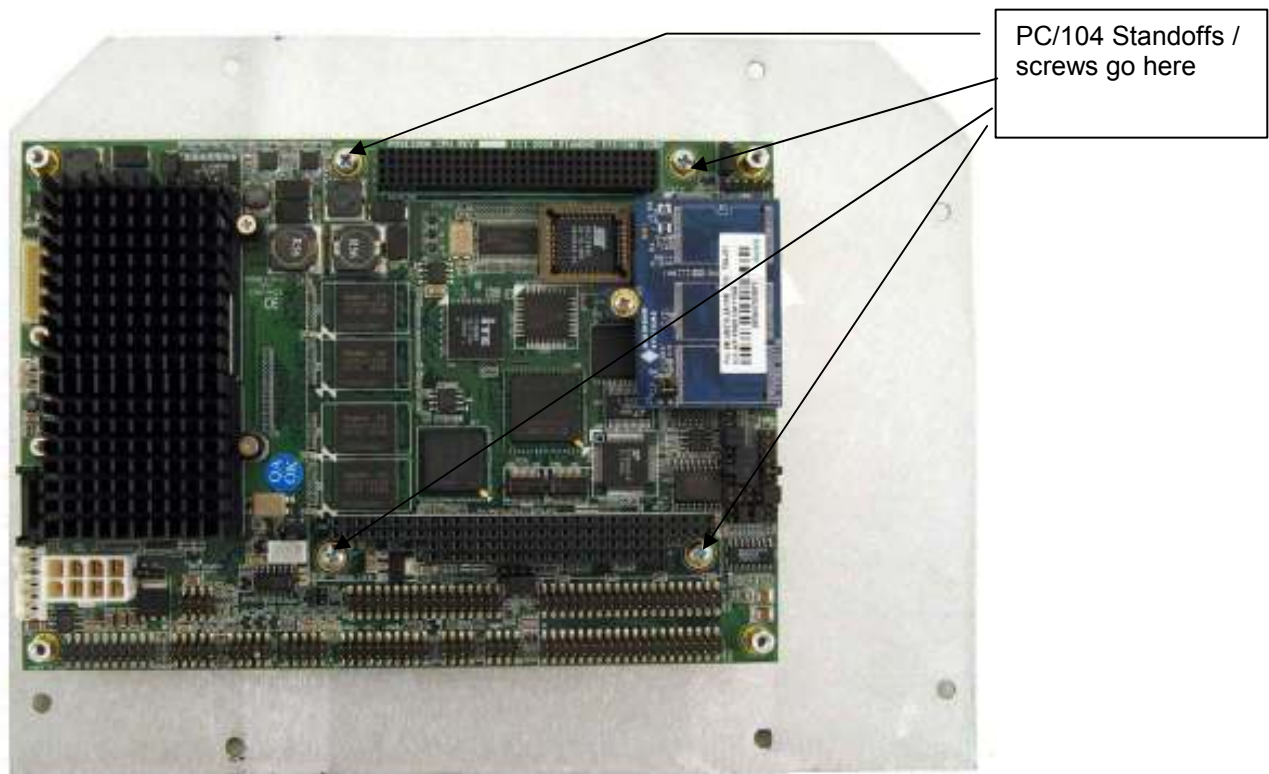
Install the Poseidon SBC over the 8 spacers on the base plate. Fasten the Poseidon board by attaching the four 7mm spacers remaining from step #2 through the top of the Poseidon board at the four corner mounting holes. If you have an IDE cable installed, fold the cable and route it between the Poseidon board and the base plate toward the back of the board.



Edge view showing 7mm and 14mm spacers

If you are using any additional PC/104 or PC/104-Plus expansion cards in your system, screw four 0.6" PC/104 standoffs provided with your expansion PC/104 card (or in the Diamond Systems MTG-104 provided with the Poseidon Development Kit) through the top of the Poseidon board into the four standoffs under the four PC/104 mounting holes in the middle of the Poseidon board (See photo).

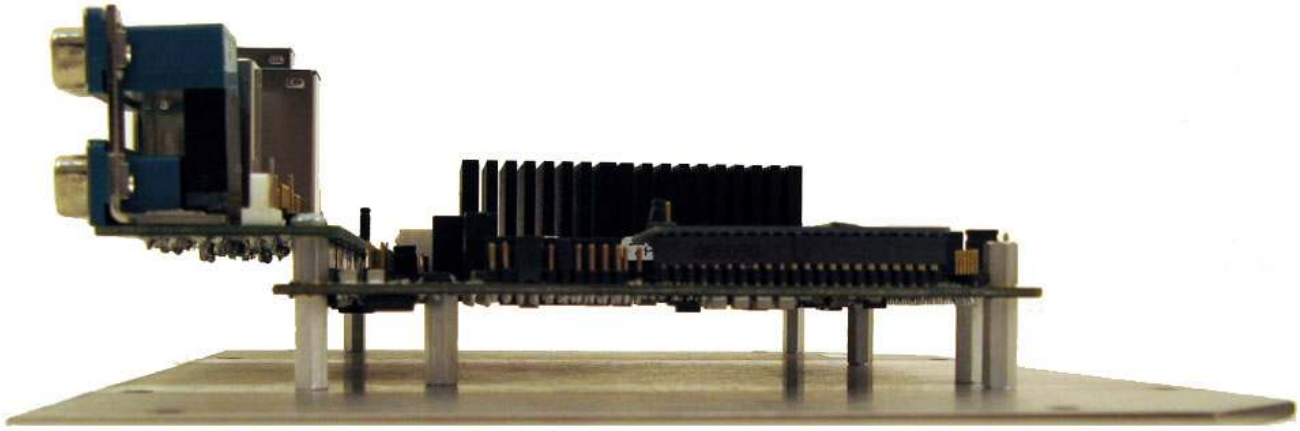
If you are not using any additional PC/104 or PC/104-Plus expansion cards in your system, screw four pan head 4-40 x 1/4" screws provided in the Triton Enclosure Hardware Kit into the four PC/104 mounting holes in the middle of the Poseidon board (See photo).



Poseidon board installed onto base plate

5. Attach Panel I/O Board to the Poseidon SBC

Install the Panel I/O Board onto the Poseidon SBC. Make sure that all connectors seat properly. Secure the board with two pan-head Philips 4-40 x 1/4" screws provided in the Triton Enclosure Hardware Kit.



Side view of Poseidon SBC mounted on base plate with panel I/O board installed

6. Attach Triton Enclosure Face Plate to Poseidon Panel I/O Board Assembly

Attach the Triton Enclosure face plate to the Poseidon SBC – Panel I/O Board – Base Plate Assembly. If necessary remove the 8 securing hardware jack screws from the four Dsub connectors on the Panel I/O board (the two DB9 serial connectors, the DB9 female power input connector and the DB15 female VGA connector). Position the face plate with the bottom of the face plate ON TOP of the base plate, and hold the face plate in place by reattaching the jack screws to the three DB9 and one DB15 connectors. If necessary, jack screws are provided in the Triton Enclosure hardware kit. Occasionally it may be difficult to insert one or two of the screwlocks. This is just a minor alignment problem due to tolerance in the corner mounting holes. You can overcome it by loosening all screws, including the 4 corner mounting screws, and then tightening them once all are inserted.

It is recommended that you do not attach the Triton Face Plate to the Base Plate with the two flat head screws until the U-Frame has been installed in Step 12 below.

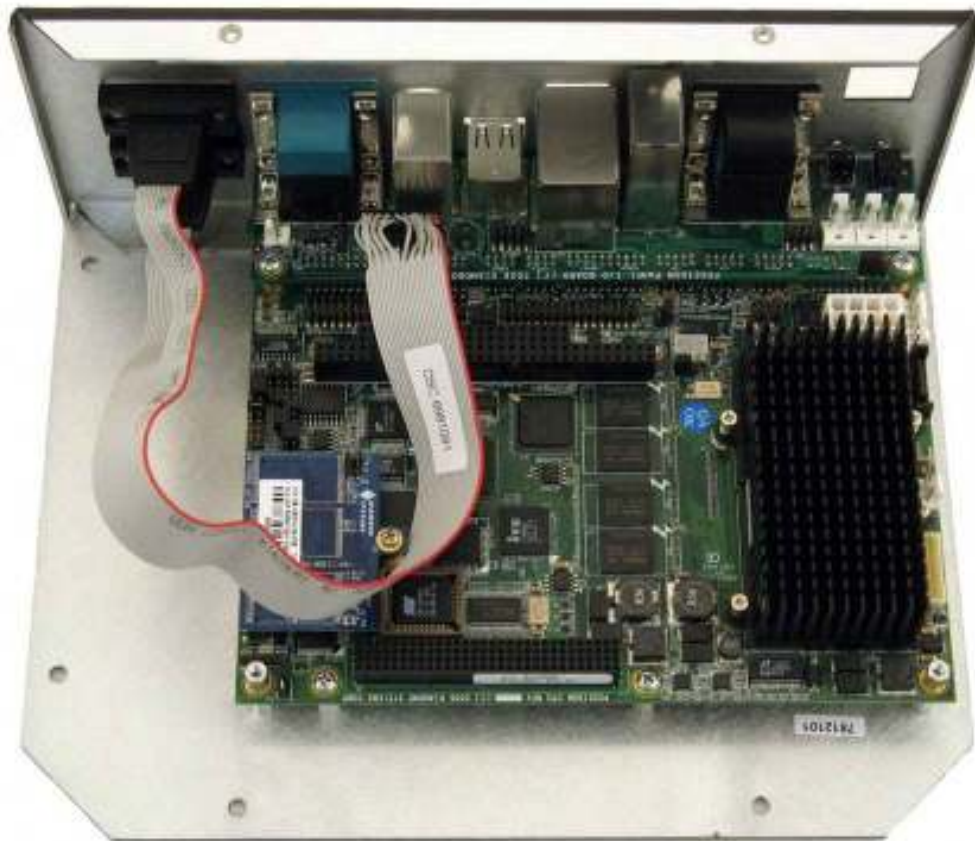


Face Plate showing 8 jack screws installed into 4 Dsub connectors

7. Attach Dual Serial Cable for COM3 and COM4

Attach the Dual Serial Cable, DSC#6981081 to the Triton Enclosure Face Plate by removing the four securing hardware jack screws (if necessary) from the two DB9 connectors on the cable. Place the two DB9 connectors through the two openings on the Face Plate labeled COM3 and COM4, installing the COM4 connector first, then

the COM3 connector. The DB9 connector with the red pin 1 indicator wire goes into the COM3 opening. Secure the connectors in place by reattaching the four jack screws onto the two DB9 connectors. Connect the 2x10 2mm connector at the other end of the Dual Serial Cable to connector CN3 on the Poseidon Panel I/O Board.



DSC cable #6981081 installed in the face plate and connected to CN3 of the panel I/O board

8. Attach Triton Power Button

Attach the Triton Power Button to the face plate by inserting the 2x6 2mm connector on the Triton Power Button interface cable (DSC#6981094) through the face plate from the front toward the Poseidon board. Push the power button firmly into the face plate. Connect the 2x6 2mm connector to the Poseidon Panel I/O Board utility connector CN1.

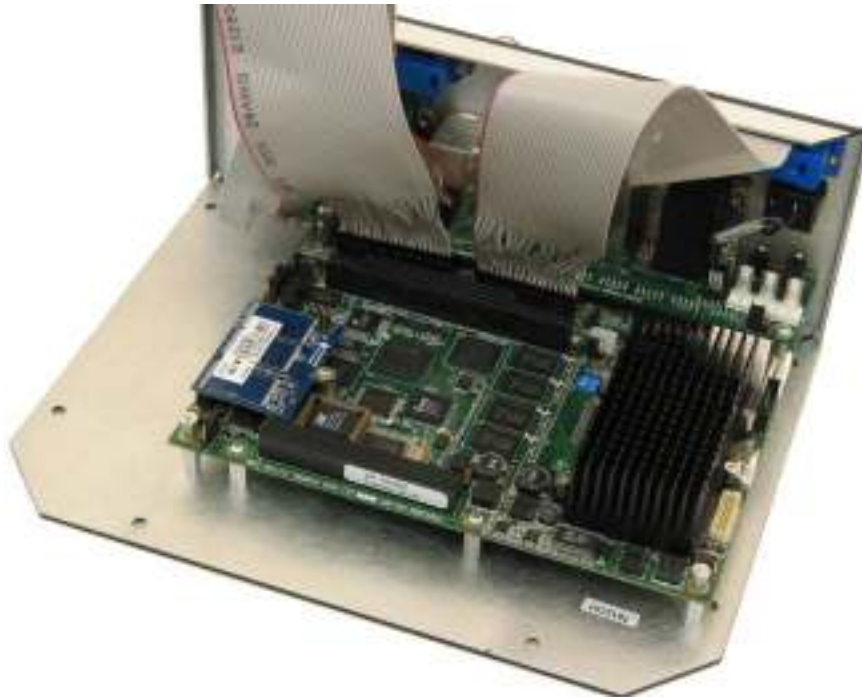


Triton Power Button (DSC cable #6981094) installed and connected to panel I/O board

9. Install Data Acquisition Cables

Install the data acquisition cables. First, install the Triton Analog I/O Cable (DSC#6982020). Attach the Centronics 50 pin connector to the face plate by placing the connector through the face plate opening labeled Analog I/O with the red pin 1 wire facing toward the right hand edge of the system (looking from the front of the face plate). Secure the connector with two 3/16" jack screws provided with the Triton Enclosure Hardware Kit. You may need to remove the connector locking brackets to complete this installation. Plug the 2x20 2mm connector at the other end of the cable to connector CN13 of the Poseidon board.

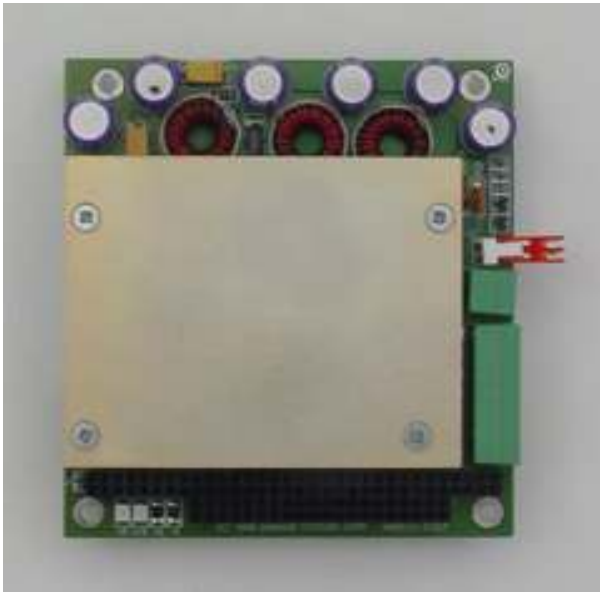
Next, install the Triton Digital I/O Cable (DSC #6982021). Attach the DB37 female connector to the face plate by placing the connector through the face plate opening labeled Digital I/O, with the red pin 1 wire facing toward the right hand edge of the system. Secure the connector with two 3/16" jack screws provided with the Triton Enclosure Hardware Kit. Plug the 2x17 wmm connector at the other end of the cable to connector CN12 on the Poseidon Board.



DSC cables #6982020 and #6982021 installed in the face plate and connected to connectors CN13 and CN12 respectively on the Poseidon board

10. Install Power Supply (Optional)

After you install the CPU board, you may need to add a Jupiter-MM power supply to the Poseidon board. Using the optional two-wire power cable DSC #6981092, connect the Jupiter-MM power supply to the white 6-pin .156 connector on the left side of the panel I/O board. With this configuration, the Triton Enclosure Power Button is inoperative.



Jupiter-MM power supply



Jupiter-MM power supply attached to Poseidon

11. Install Hard Drive (Optional)

If you are installing a hard drive into the system, install it to the Triton U-Frame using mounting hardware provided with your disk drive. You might want to install the 44-pin IDE cable from Step 3 before attaching the HDD to the enclosure body. Check the label on the hard drive for pin 1 identification. Make sure the hard drive is configured for master. This information is also printed on the hard drive label.

The connector end of the hard drive can face either left or right. Check the desired routing for the IDE cable and orient the hard drive in the most efficient direction. In most cases, the best orientation is for the IDE drive connector facing left when viewed from the front of the system.



Bend the IDE cable down and to the right as shown in the photo above right. In this manner pin 1 will be in the proper location for installing onto the IDE drive later.

12. Install the Cooling Fan (optional)

Place the cooling fan on the inside left side of the U-frame so that the fan manufacturer name and model # are visible to the inside and the power cable is at the top of the fan. Insert the four $\frac{3}{4}$ " #4 flat head screws through the U-frame from the painted side through the four fan mounting holes. Fasten with the four hex nylock nuts provided.

With a 1.0GHz Poseidon board, attach the fan power cable to the fan power connector FAN1. With a 2.0GHz Poseidon board, the CPU Fan is already connected to this connector. Remove the CPU Fan connection and install the Fan Y-cable, DSC #6081098. Then connect both the CPU fan and Triton cooling fan to the two connections provided on the Fan Y-cable.



1.0GHz fan installation

12. Install the Triton U-Frame Body

First, install the CompactFlash cover plate to the outside of the U-Frame on the lower left side (front view) using two #6-32 x $\frac{1}{4}$ " flat head screws provided.

Next, attach the U-Frame to the Base Plate. Insure that the tabs on the end of the Face Plate fit inside the side panels of the U-Frame. Secure the U-Frame to the base plate using either six #6-32 x $\frac{1}{4}$ " flat head screws or use the four rubber feet provided for a slip-free desktop mounting along both sides of the U-Frame with two #6-32 x $\frac{1}{4}$ " flat head screws along the back.

Fasten the face plate to the base plate with 2 #6-32 flat head screws. Insert all 8 screws / rubber feet loosely until they seat, then tighten them down. This helps to ensure proper alignment of the U-frame and face plat to the base plate.

13. Attach Top Plate

Attach the top plate to the system with the remaining 8 #6-32 flat head screws from the Triton hardware kit.

Your computer system is now completely assembled.

14. Powering the System with the AC Adapter

The system may be powered with the AC Adapter PS-5V-04 provided Trident Enclosure Kit. Plug the AC Adapter into the AC Adapter Cable (DSC #6981093) provided with the Kit. Plug the AC Adapter Cable directly into the female DB9 power connector on the front panel. This combination provides 5V input only to the system. The system will boot when the AC Adapter is plugged into the wall outlet and the power switch is depressed.

