

SMT118LT

User Manual



Revision History

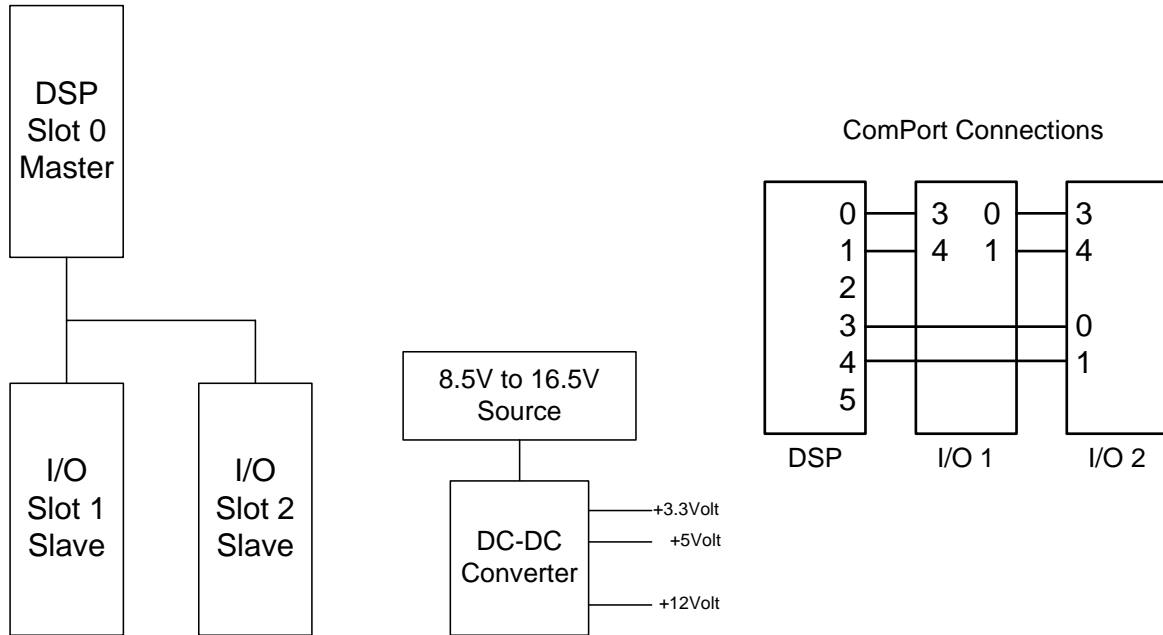
Date	Comments	Engineer	Version
11/02/05	First release	GP	1.0

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Block Diagram

SMT118-LT



From the block diagram it can be seen that this is a simple three slot TIM carrier with a CPU site and two I/O sites.

Each of the sections will be described in detail below.

Power Supply

Power is supplied to the SMT118LT via the 4 pin connector HDR9 (referring to connector position section, HDR9 is located at the top right of the drawing). A minimum current of 200mA is required by the circuitry of the SMT118LT. The maximum current will be dependant on other TIMs mounted on the SMT118LT.

The on-board supplies are generated by custom designed industry standard pin-compatible 2" x 1" DC-DC converters. The 12V module is based around the [Micrel 2186](#) device and includes an input voltage regulator to allow a maximum of an 18V input. The 5 and 3.3V supplies are based around the [Micrel 2182](#) device and these allow an input range from $V_{out}+1.5$ to 30V. The individual supplies are rated as follows:

Voltage rail (Volts)	Minimum input (Volts)	Max current delivery (Amps)
3.3	4.5	5
5.0	6.5	5
12.0	7.0	1

These values imply a minimum board supply of 7.0V. The maximum input is 18.0V.

Note that a -12V supply is not provided as standard, but an option is available to use a dual output 12 or 15 volt DC-DC converter which will be able to supply both positive and negative supplies to the TIM sites. When this option is installed the board supply voltage must be greater than 10V.

Individual LEDs are illuminated when each of the DC-DC converters becomes active.

TIM sites

The SMT118LT has three TIM sites. None of the TIM sites include the global bus connector.

JTAG

The JTAG chain includes all three TIM sites with the proviso that there must always be a CPU module in SITE 1, or a module that connects TDI to TDO.

A standard 14-pin XDS510 compatible header (CONN9) is provided to allow debugging.

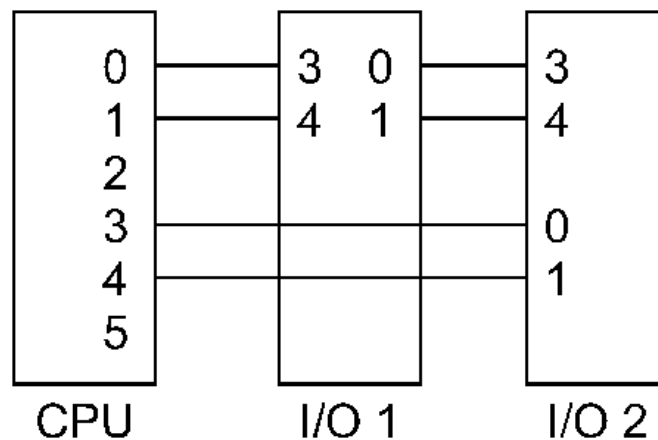
In addition to the TI standard 14-pin JTAG header, there is a 20 way 0.050" pitch high-density connector which allows direct JTAG connection to the [SMT310](#) series of PCI TIM motherboards with embedded test bus controller.

CPU & I/O

There is no differentiation between the CPU and I/O TIM sites other than the JTAG requirement mentioned above.

Comm-ports

Full Comm-port connectivity is provided using the following scheme:



With this method, a dual pipe exists between the modules in a 0-3 and 1-4 routing fashion. Taking the global bus issues into consideration, three CPU TIMs could be mounted on the SMT118LT and good Comm-port communications established.

No active or passive electronic circuitry is connected to these Comm-ports but in normal operating conditions no signal is left un-driven for any length of time.

Reset

As the SMT118LT is intended for stand-alone operation, then the system reset must be provided locally. This is implemented by a device which monitors the 5V power line and generates a system reset to all TIM sites and on-board peripherals for approximately $\frac{1}{2}$ second after the power line is stable.

In addition to this reset mechanism there is a reset push-button switch provided, and the shorting of the reset pin to ground (see CONN8 in connector section) will also cause a $\frac{1}{2}$ second reset.

Board Size

The physical size of the board is 145mm x 210mm.

Connector Pin-Outs

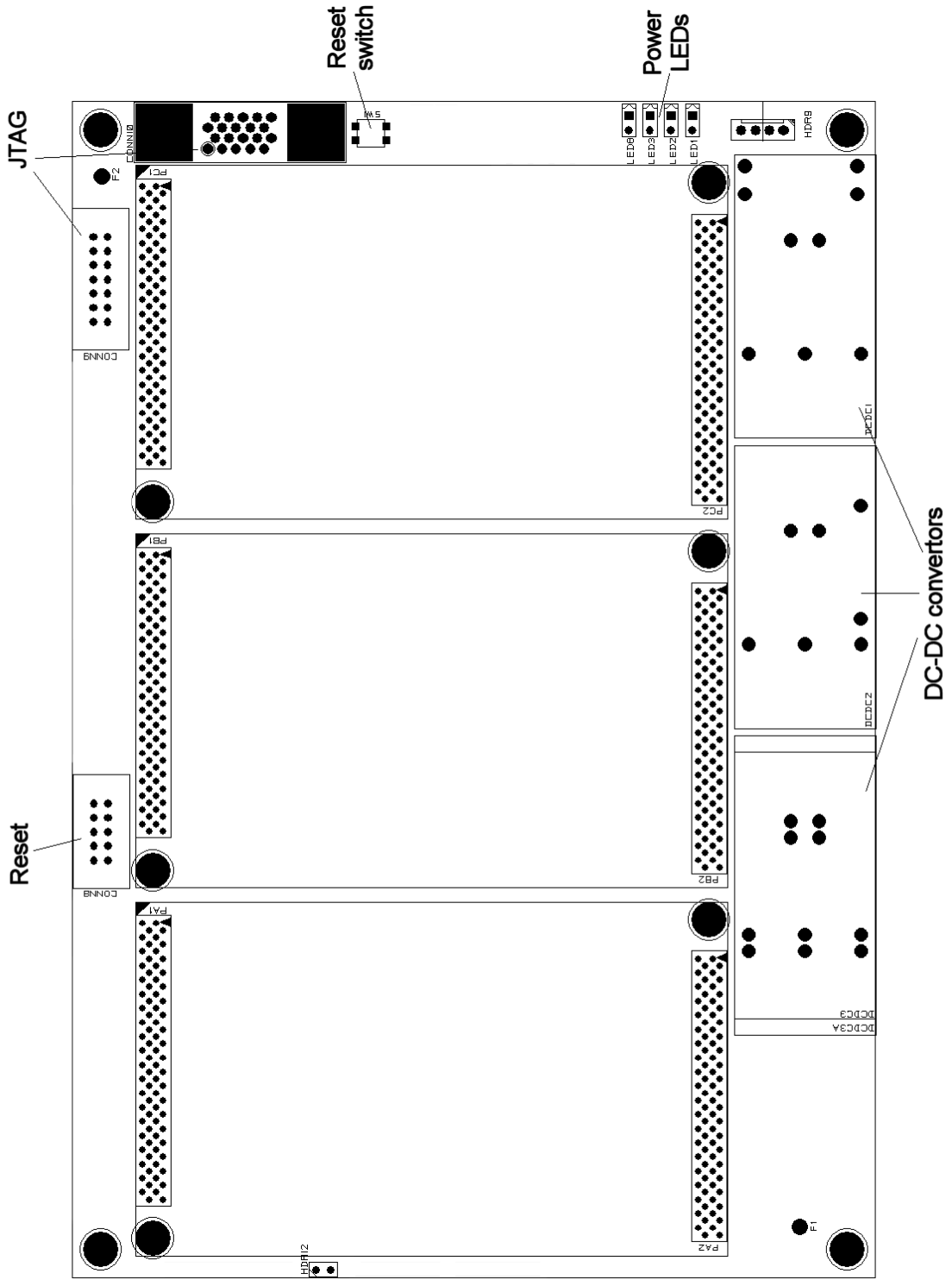
CONN8 - RESET

Function	Pin	Pin	Function
RESET IN	1	2	GND
	3	4	
3.3V	5	6	GND
	7	8	
	9	10	

CONN9 - JTAG

Function	Pin	Pin	Function
TMS	1	2	TRST
TDI	3	4	GND
PD(+5V)	5	6	KEY
TDO	7	8	GND
TCK_RET	9	10	GND
TCK	11	12	GND
EMU0	13	14	EMU1

Connector Position



Safety

This module presents no hazard to the user.

EMC

This module is designed to operate from within an enclosed host system, which is build to provide EMC shielding. Operation within the EU EMC guidelines is not guaranteed unless it is installed within an adequate host system.

This module is protected from damage by fast voltage transients originating from outside the host system which may be introduced through the output cables.

Short circuiting any output to ground does not cause the host PC system to lock up or reboot.

Physical Properties

Dimensions	211 x 145 mm
Weight	250g approx. (without TIMs).
Supply Voltage	+7 to 18V
Supply Current	Depends upon installed TIMs. See Power Supply section.
MTBF	