HW Getting Started Guide

MPC8349E MDS Processor Board

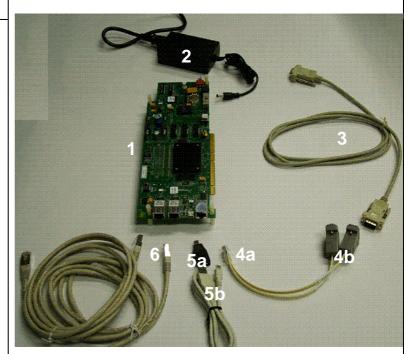
May 2005: rev 8



MPC8349E MDS Processor Board HW Getting Started Guide

Step 1: Check HW kit contents.

- 1. MPC8349E MDS processor board
- 2. AC/DC 5V/5A universal power supply kit
- 3. RS232 standard serial cable with two 9-pin connectors—extends the Freescale adaptor cable
- 4. Freescale adaptor cable (joined) with one RJ45 and two RS232 connectors:
 - a) RJ45 10-pin plug
 - b) RS232 9-pin D-type connector
- 5. USB adaptor and connector:
 - a) mini USB adaptor: 5-pin (male) and 4-pin (female)
 - b) USB cable with two connectors: standardA and miniB
- Ethernet cables (2) with RJ45-8 connectors
- four sets of plastic spacers (male/female)
- one Allen key—to replace chip in Tyco socket
- CodeWarrior SW kit (includes JTAG connectivity unit)
- MPC8349E MDS processor board errata





Abbreviations and Definitions		
BCSR	board control and status register	
BMS	boot memory space	
CFG_RS	bit in RCW register	
CLKDIV	clock division	
CLKIN	clock input	
COP	debug port in PowerPC	
DDR	double data rate DRAM	
DIP	dual in-line package	
I2C ©	Philips serial port	
JTAG	IEEE standard 1149.1	
LED	light emission diode	
PCI	peripheral component interconnect	
PCI_SYNC_OUT	chip pin	
PIB	platform interface board	
PLL	phase lock loop	
RCW	reset configuration words	
ROM	read-only memory	
SHMOO	sweep test (of frequency and core voltage)	
TLE	bit in RCW register	
TSEC	triple speed Ethernet controller	

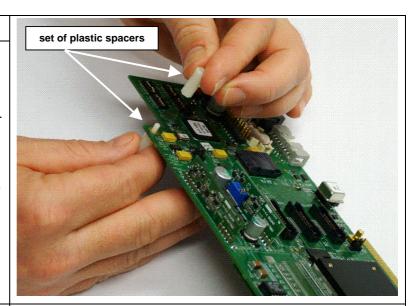


Step 2: Connect plastic spacers.

Four sets of plastic spacers screw into holes located at (approximately) the four corners of the board.

The spacers raise and stabilize the board.

- From under the board, insert a male spacer into one of the board's four spacer holes.
- 2. Attach a female spacer onto the male spacer.
- 3. Repeat for the three remaining pairs of spacers.

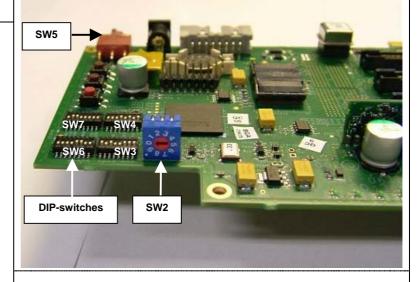


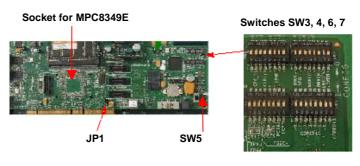
Step 3: Check switches and jumper.

The MPC8349E MDS processor board has two rows of Dual-In-Line Package (DIP) switches.

The default DIP-switch positions set-up the MPC8349E MDS processor board clock mode as shown in the table below:

MPC8349E MDS Processor Board Clock Mode		
e300 Core Frequency	533 MHz	
CCB	266 MHz	
DDR	266 MHz	
Local Bus	133 MHz	







Switches: SW3 Configuration Set 1

- 1: CFG_RS0 2: CFG_RS1
- 3: CFG_RS2
- 4: CLKDIV
- 5: SPMF0
- 6: SPMF1
- 7: SPMF2
- 8: SPMF3



Note! A DIP-switch in the **ON** position creates a zero-value signal.

SW3.1-SW3.3

- CFG RS sets the RCW source.
- ON: value of zero.
- Factory setting: '000' when RCW fetched from the local bus.
- DIP-switch SW4.8 FCFG: chooses between BCSR or Flash RCW source.

SW3.4

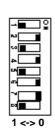
- CLKDIV selects the relationship between CLKIN and PCI_SYNC_OUT.
- If the MPC8349E MDS processor board is configured as a PCI Agent (factory setting) then CLKDIV is set to zero.

SW3.5-SW3.8

- SPMF: select System PLL Multiplication Factor.
- Factory setting: '0100'.
- Clock ratio: csb_clk/CLKIN = 4 (csb_clk = 266MHz) or csb_clk/PCI_CLK = 4.

Switches: SW4 Configuration Set 2

- 1: TSEC1-0
- 2: TSEC1-1
- 3: TSEC2-0
- 4: TSEC2-1
- 5: BMS
- 6: TLE 7: PCI64
- 8: FCFG



SW4.1,2-SW4.3,4: TSEC1/TSEC2

- Select the protocol used by the two port TSEC controller.
- Factory setting: enters GMII mode when TSEC1 and TSEC2 initiate similar 2'b10.

SW4.5 BMS: Selects boot memory space

• Factory setting is '1' when boot memory resides in upper eight Mbytes at 0xFF80_0000 to 0xFFFF_FFF.

SW4.6 TLE: Selects endian mode

Factory setting: '0'; big endian mode.

SW4.7 PCI64: Selects PCI width

• 32-bit PCI port factory setting: '0'.

SW4.8 FCFG: Sets RCW source on local bus

- '0': BCSR source; setting is effective from DIP-switches SW3-SW6.
- '1': Flash source—setting is burned in flash.
- · Factory setting: '1'; configured from flash.

Switches: SW6 Configuration Set 3

- 1: BOOT SEQ0
- 2: BOOT SEQ1
- 3: ROMLOC0 4: ROMLOC1
- 5: ROMLOC2
- 6: DDRCM
- 7: LBIUCM
- 8: SWEN



SW6.1-SW6.2: Boot sequencer configuration

- Boot sequencer loads configuration data from the serial ROM.
- Factory setting: '00'; disables access to I2C ROM.

SW6.3-SW6.5: Boot ROM location

• Factory setting: '110'; provides flash boot on local bus.

SW6.6 DDR: Clock mode

 Factory setting: '0'; operates with DDR clock (identical to csb_clk).

SW6.7: Local bus clock mode

Factory setting: '1'; operates with local bus clock—half of csb_clk.

SW6.8: Software watchdog

• Factory setting: '0'; with software watchdog disabled.



Switches: SW7 Configuration Set 4



- 4: CORPLL3 5: CORPLL4
- 6: CORPLL5 7: CORPLL6
- 8: COREDIS



SW7.1-SW7.7: Core PLL setting

- Sets the ratio between the e300 core clock and the internal csb clk.
- Factory setting: '00001000' for core_clk = 533 MHz.
- Recommended secondary setting: '00000110' for core_clk = 500 MHz.

SW7.3-SW7.5: Core disable

• Factory setting: '0'; core enabled for boot operation.

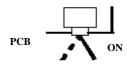
Switches: SW2 Software Option



SW2: Software option

- Software BCD rotary-switch SW2 positions (0-7) enable program flow change.
- Switch status is seen in BCSR10 bits 2-4.
- Factory setting: '0"

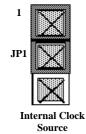
Switches: SW5 Power Switch

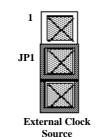


SW5: Power switch

- **ON**: power from an external 5V power supply via the P11 power jack for standalone mode.
- Combined mode: power from +5V on PIB power supply through riser connectors (regardless of SW5 position).
- Board used as a PCI add-in card: PC internal power supply provides 5V via PCI edge connector (regardless of SW5 position).

Jumper: JP1





JP1

- Selects the source for CLOCKIN signal.
- If a jumper is located between JP1 pins 1-2 (factory setting) then the processor is clocked from the on-board clock oscillator U21 socket.
- The SHMOO mode clock source is I2C; manually programmed clock synthesizer residing on the PIB.
- Close JP1 pins 2-3 to supply clock to a processor from an external generator via P5.



Step 4: Assemble and connect the power supply kit.

Note! Move the power switch to OFF.

Assemble the AC/DC power supply kit:

- power cable with country-specific wall outlet plug
- power supply unit and cable with jack (for board connection)
- 1. Connect the AC/DC power supply cable with jack to the board.
- Plug the power cable into the wall outlet.

Step 5: Initial board power up.

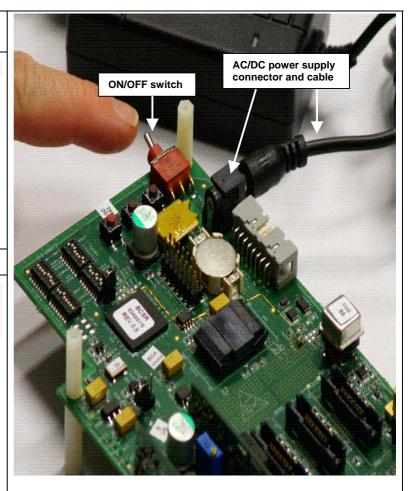
Note! To prevent damage to the JTAG connectivity unit (part of the CodeWarrior SW kit) connect the unit only after initial board reset.

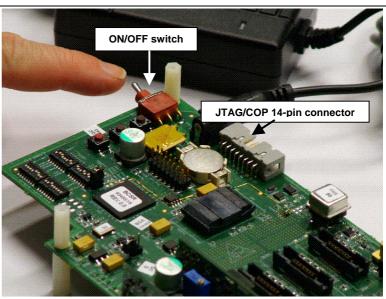
- Move the power switch to ON— LED13 displays green light.
- Check for completion of the reset sequence—indicated by a single flash of LED1 (green) and LED2 (red). The location of LED1 and LED2 is marked on the Step 7 image.
- 3. Shut off the power—move the power switch to OFF.

Step 6: Connect the JTAG connectivity unit to the board.

The JTAG connectivity unit (included as part of the CodeWarrior SW kit) lets CodeWarrior SW work with the board.

- 1. Connect the JTAG connectivity unit to the JTAG/COP 14-pin connector.
- 2. Move the power switch to ON.
- 3. Check for completion of the reset sequence (see Step 5, part 2).
- 4. Continue as per the instructions in the CodeWarrior SW Quick Start (in progress).



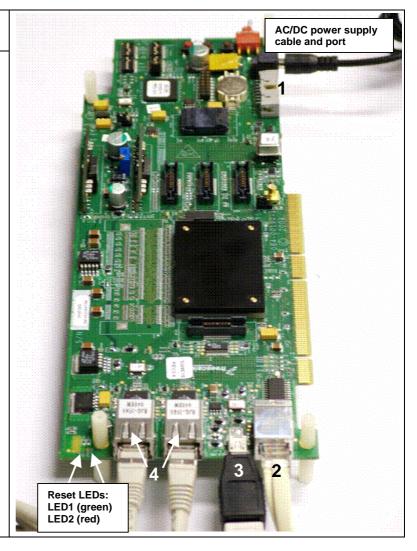




Step 7: Attach remaining cables to the board as per specifications.

Connect the remaining cables to the board as per user specifications and planned board use:

- JTAG/COP connector for JTAG connectivity unit—included in the CodeWarrior SW kit
- 2. Serial port for the joined Freescale adaptor cable with one RJ45 and two RS232 connectors:
 - a) RJ45 10-pin plug—plugs into the serial port
 - b) RS232 9-pin D-type connector
- 3. USB port for USB adaptor and connector:
 - a) mini USB adaptor: 5-pin (male) and 4-pin (female)
 - b) USB cable with two connectors: standardA and miniB.
- 4. Ethernet ports for the two Ethernet cables with RJ45-8 pin connectors.





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