HW Getting Started Guide

MPC8349EA MDS Processor Board

Nov 2006: Rev. A

Contents

About This Document

This document shows how to connect the MPC8349EA MDS processor board and verify its basic operation, in a step by step format. Settings for switches and jumpers are shown, as well as instructions for connecting peripheral devices. In addition, instructions for connecting the MPC8349EA MDS processor board to an Integrated Development Environment (IDE), such as Freescale's *CodeWarrior*® are included, but instructions for working with the IDE are beyond the scope of this document. This version of the board has a faster DDR2 (400MHz), and a flash memory of 32MB.

Required Reading

It is assumed that the reader is familiar with the MPC8349EA chip, and the contents of the *MPC8349EA Reference Manual*.

Definitions, AcroRev. And Abbreviations

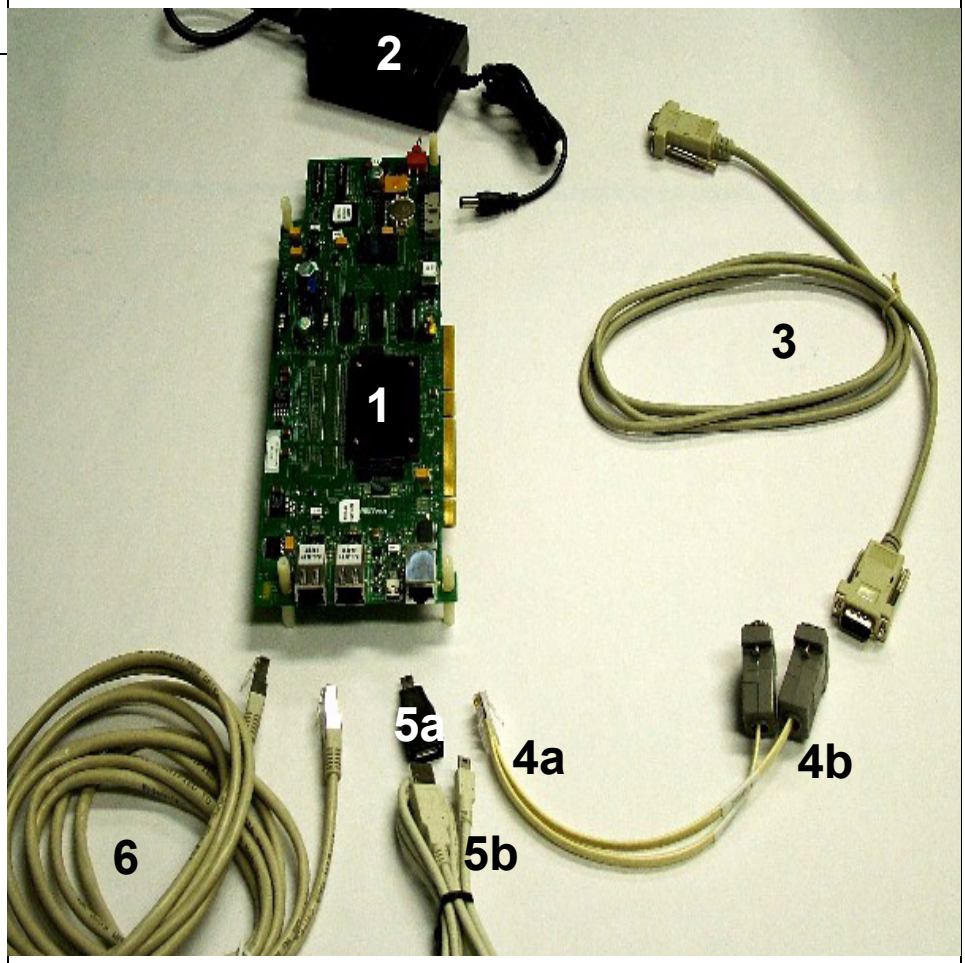
BCSR	board control and status register	**LED**	light emitting diode
BMS	boot memory space	**PCI**	peripheral component interconnect
CFG_RS	bit in RCW register	**PCI_SYNC_OUT**	chip pin
CLKDIV	clock division	**PIB**	platform I/O board
CLKIN	clock input	**PLL**	phase lock loop
COP	debug port in PowerPC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

MPC8349EA MDS Processor Board

HW Getting Started Guide

Step 1: Check HW kit contents

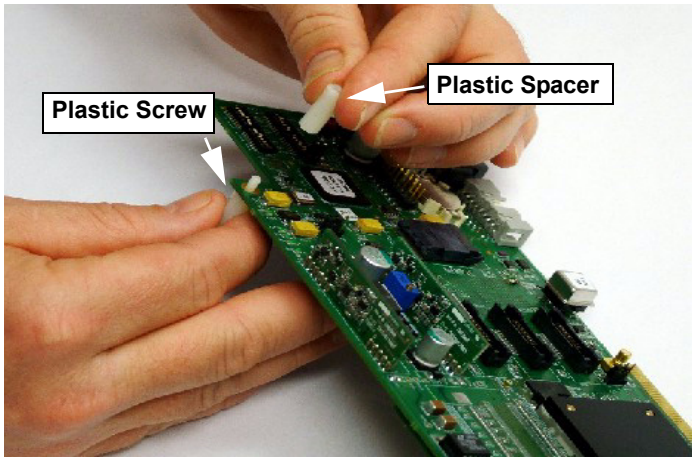
1. MPC8349EA MDS Processor Board
2. AC/DC 5V/5A universal power supply kit
3. RS232 standard serial cable with two 9-pin connectors-extends the Freescale adaptor cable
4. Freescale adaptor cable (joined) with one RJ45 and two RS232 connectors:
   a) RJ45 10-pin plug
   b) RS232 9-pin D-type connector
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.
6. Ethernet cables (2) with RJ45-8 connectors
   Not shown:
7. Four sets of plastic spacers (male/female)
8. One Allen wrench
9. CodeWarrior SW kit (includes JTAG connectivity unit)
10. MPC8349EA MDS Processor Board documentation



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.

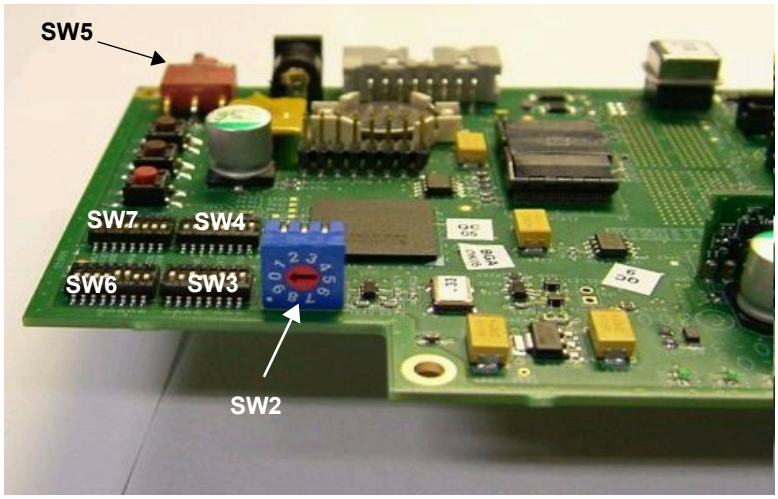
1. From under the board, insert a spacer into one of the board's four spacer holes.
2. Attach a female spacer onto the male spacer.
3. Repeat for the three remaining pairs of spacers.

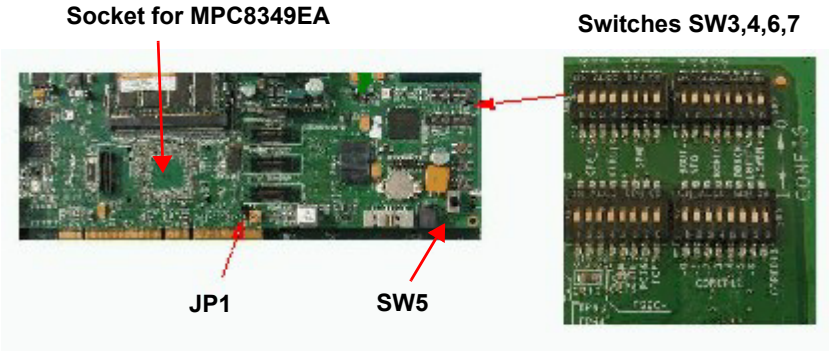


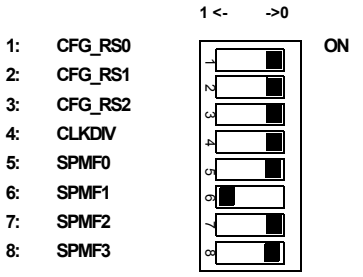
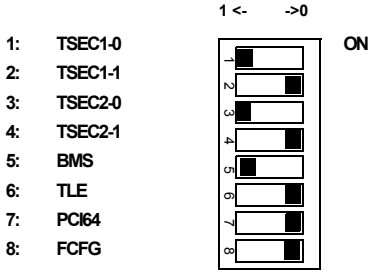
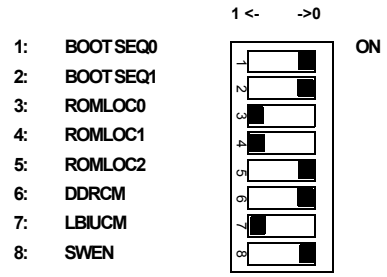
Step 3: Check Switches and Jumpers

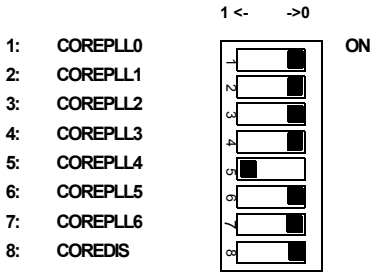
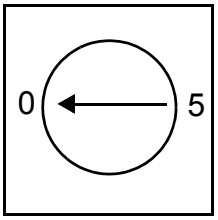
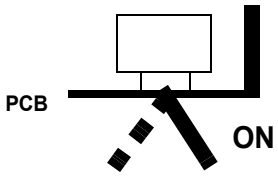
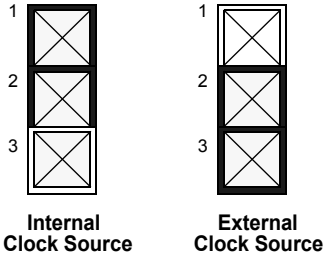
The MPC8349EA MDS Processor Board has two rows of Dual-In-Line Package (DIP) switches.The default DIP-switch positions set-up the MPC8349EA MDS Processor Board clock mode as shown in the table below:

MPC8349EA MDS Processor Board Clock Mode	
e300 Core Frequency	533 MHz
CCB	266 MHz
DDR2 *(can be changed to 400MHz)*(	266 MHz
Local Bus	133 MHz





Step 3.a: SW3 Configuration Set 1  The "On" DIP Switch position corresponds to a signal value of “zero”.	**SW3.1-SW3.3** CFG_RS sets the Reset Configuration Words Source ON: value of zero factory setting: '000' when RCW is fetched from the local bus DIP-switch SW9/3 FCFG: chooses between BCSR or Flash RCW source **SW3.4** CLKDIV selects the relationship between CLKIN and PCI_SYNC_OUT if the MPC8349 is configured as a PCI Agent (factory setting) then CLK_DIV is low **SW3.5-SW3.8** SPMF selects System PLL Multiplication Factor factory setting: '0100' clock ratio: csb_clk/CLKIN = 4 (csb_clk = 266MHz) or csb_clk/PCI_CLK = 4 Factory default setting: 00000101
Step 3.b: SW4 Configuration Set 2  	**SW4.1-SW4.2: TSEC1/TSEC2** Selects 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_FFFF **SW4.6 TLE: Selects endian mode** factory setting: '0'; big endian mode **SW4.7: PCI64: Selects PCI width** factory setting: '0'; 32-bit width **SW4.8: FCFG: Sets RCW source on local bus** ‘0’: BCSR source; setting uses values from SW3 and SW6. ‘1’: Flash source - setting is burned in flash memory Factory setting: ‘0’ Factory default setting: 10101000
Step 3.c: SW6 Configuration Set 3  	**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 Factory default setting: 00110010

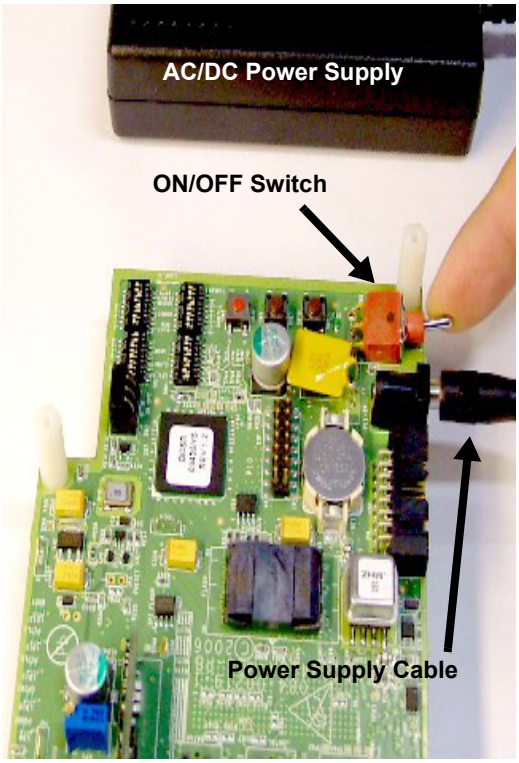
Step 3.d: SW7 Configuration Set 4 	**SW7.1-SW7.7: Core PLL setting** Sets the ratio between the e300 core clock and the internal csb_clk Factory setting: '000010000' for core_clk = 533MHz Recommended secondary setting: '00000110' for core_clk = 500MHz **SW7.8: Core disable** Factory setting: '0'; core enabled for boot operation Factory default setting: 00001000
Step 3.e: SW2 Software Option 	**SW2: Software option** Software BCS rotary-switch SW2 positions (0-7) enable program flow change Switch status can be seen in BCSR10[2-4] Factory setting: '0'
Step 3.f: SW5 Power Switch 	**SW5: power switch** ON: power from an external 5V power supply via the P10 power jack combined mode: powered from +5V on PIB power supply through riser connectors (regardless of SW5 position) board plugged as a PCI add-in card: PC internal power supply will provide 5V via PCI edge connector (regardless of SW5 position)
Step 3.g: JP1: Internal/External Clock 	**JP1** Selects the source for the CLOCKIN signal • If a jumper is located between JP1 pins 1-2 (factory setting), the processor is clocked from the on-board clock oscillator (U21 socket) • If a jumper is located between JP1 pins 2-3, the processor is clocked from an external source (via P5) • The SHMOO mode clock source is I2C; manually programmed clock synthesizer residing on PIB

Step 4: Assemble and connect the power supply kit.

Note:
Move 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.
2. Plug the power cable into the wall outlet.



Step 5: Perform initial board power up.

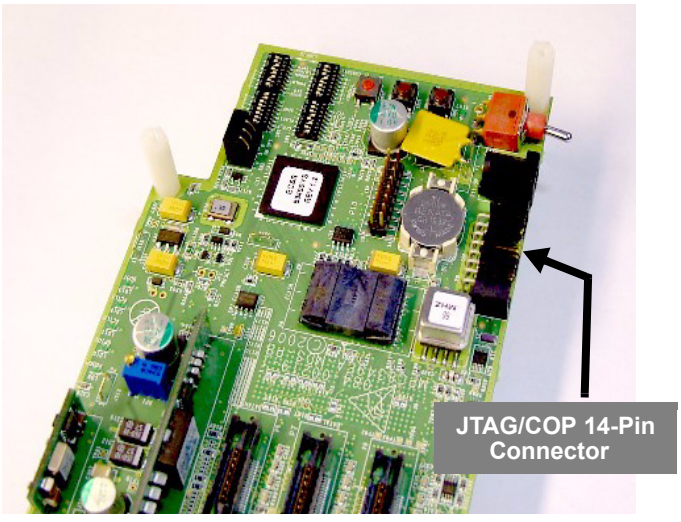
Note:
To prevent damage to the JTAG connectivity unit connect the unit only after initial board reset.

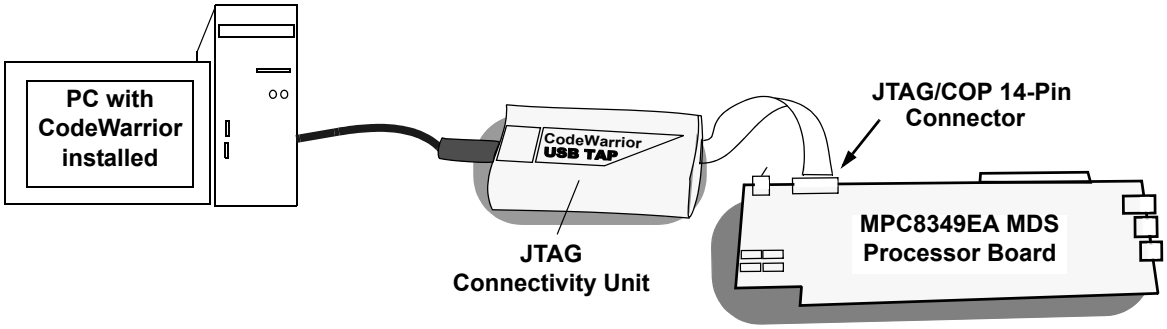
1. Move the power switch to ON. LED1 briefly displays green light.
2. Check for completion of the reset sequence-indicated by a single flash of LED1 (green) and LED2 (red). The location of LED1 and LED2 is marked in the figure of Step 7 on page 7.
3. Shut off the power-move the power switch to OFF.

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

The JTAG connectivity unit enables 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 on page 6).
4. Continue as per the instructions in the Kit Configuration Guide.

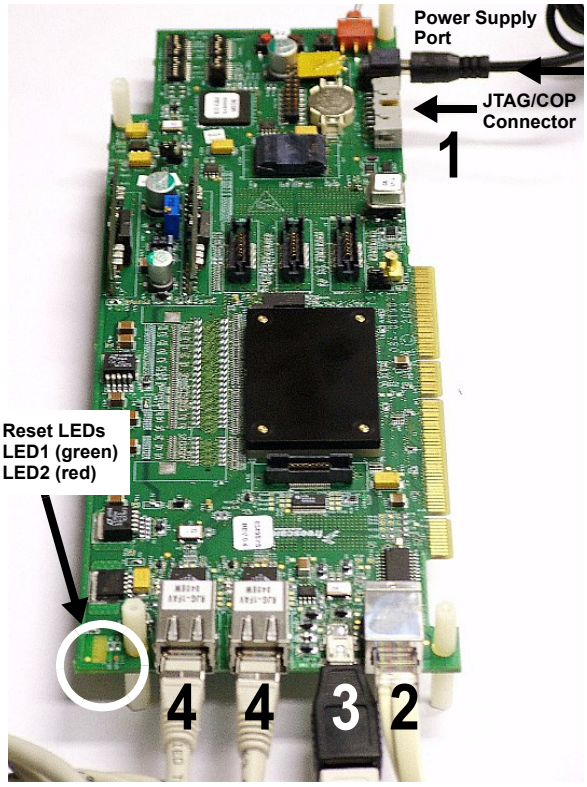




Step 7: Attach remaining cables to the board according to your development needs.

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

1. 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.



How to Reach Us:

USA/Europe/Locations Not Listed:
Freescale Semiconductor Literature Distribution Center
P.O. Box 5405
Denver, Colorado 80217
1-800-521-6274 or 480-768-2130

Japan:
Freescale Semiconductor Japan Ltd.
Technical Information Center
3-20-1, Minami-Azabu, Minato-ku
Tokyo 106-8573, Japan
81-3-3440-3569

Asia/Pacific:
Freescale Semiconductor Hong Kong Ltd.
2 Dai King Street
Tai Po Industrial Estate
Tai Po, N.T., Hong Kong
852-26668334

Home Page:
www.freescale.com