

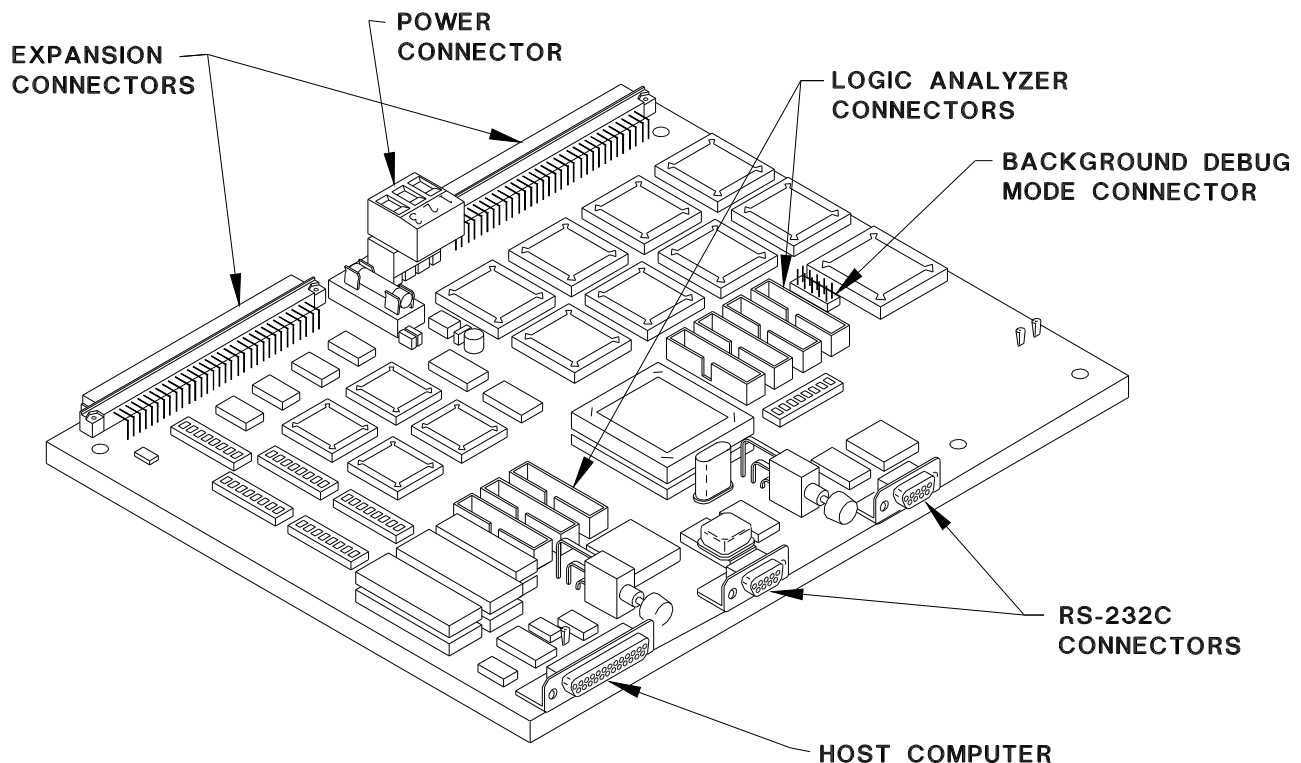
MPC505EVB Evaluation Board

The MPC505EVB Evaluation Board (EVB) is a low-cost tool for evaluating and debugging MPC505 MCU-based systems. The EVB and the supplied monitor/debugging program (MPCbug) demonstrate the capabilities of the MPC505. MPC505 functionality is further evaluated via logic analyzer connectors. You can debug user code under control of the MPCbug monitor program, assemble it (as either a Motorola S-record, COFF, or ELF file) and download it to RAM.

The EVB has one host computer port, two RS-232C serial ports and a background debug mode port. The host computer port is for downloading S-records and communicating with the host computer. Host computer port is controlled by an MC68HC711D3 MCU and is fixed at 19200 baud. The host computer port is a DB-25 connector, it can be configured as DTE or DCE. The two DB-9 connectors on the EVB let you connect RS-232C devices for evaluating MPC505 RS-232C communications and can also be configured as DTE or DCE. Supported baud rates are 1200 to 19200. background debug mode port lets you communicate with the MPC505 MCU in background debug mode.

Features

- *MCU operating range 4-33 MHz (default 4 MHz)*
- *512 kilobytes of flash memory (upgradable)*
- *128 kilobytes of synchronous static (upgradable)*
- *25-pin RS-232 serial port connection to host computer*
- *2 serial interfaces for RS-232 evaluation*
- *Background debug mode interface*
- *SCSI-2 port (optional)*
- *Expansion connectors for access to all MPC505 MCU signals*
- *Logic analyzer connectors for access to all MPC505 MCU signals*
- *5-volt-to-3.3-volt converter for the MPC505 and signal buffers operation*
- *Reset data configuration switches*



EVB OVERVIEW

The EVB is composed of two components:

1. Hardware – the board consists of an 8-inch by 8-inch multi-layer printed circuit board that provides the platform for interface and power connections to the MC68HC812A4 MCU chip, which is installed in a production socket.
2. Software – the MPCbug provides an integrated development environment which includes a project manager (MCUproject), a relocatable macro-assembler (MASM), a linker (MLINK), a librarian (AR), a Motorola S-Record generator (HEX) and a variety of other tools.

The EVB has one host computer port, two RS-232C serial ports and a background debug mode port. The host computer port is for downloading S-records and communicating with the host computer. Host computer port is controlled by an on-board MCU and fixed at 19200 baud. You can configure the host computer port as DTE or DCE. The RS-232C serial ports let you connect RS-232C devices for evaluating MPC505 RS-232C communications and can also be configured as DTE or DCE. The background debug port lets you communicate with the MPC505 MCU in background debug mode.

The EVB requires a user-supplied +5 Vdc power supply. The power supply voltage is converted to +3.3 Vdc by the EVB on-board voltage converter. +3.3 Vdc is the voltage required by the MPC505 MCU.

The EVB comes with a 4 MHz crystal and a socket for a crystal oscillator. The EVB is factory configured to use the 4 MHz crystal as the input. You can change the clock frequency up to 33 MHz.

All MPC505 MCU signals are available, unbuffered, on the expansion connectors and logic analyzer connectors. The logic analyzer connectors let you monitor MPC505 MCU activity during the development stage.

There are four flash memory devices on the EVB that provide 512 kilobytes of program storage memory. These devices are organized as long-word (32 bits wide). You can program flash memory on-board using debugger commands to download the program via the debug port and running the programming algorithm. Flash memory may be upgraded to 2 megabytes. The flash memory devices require +5 volts.

There are a total of eight 52-pin PLCC sockets on the EVB for synchronous static RAM (SSRAM) devices. These sockets are paired as upper and lower words and organized for long-word (32 bits wide) data transfers.

The SSRAM factory default for the EVB is 128 kilobytes. These devices have 9 nanosecond access times and zero wait state cycles. On-board SSRAM may be expanded to 256 kilobytes by replacing the on-board devices. You may increase the SSRAM size up to 1 megabytes.

The host computer port is a DB-25 connector. The debug port default communication rate is 19200 baud.

The two DB-9 connectors on the EVB are RS-232 connectors. These two I/O ports let you evaluate MPC505 control of a serial RS-232 I/O port. These ports can be configured as either data computer equipment (DCE) or data terminal equipment (DTE) protocol via a set of switches. (An example of DCE is a modem and DTE a computer terminal). These serial ports are available to you at all times; the development system monitor, MPCbug, does not require these ports. Supported baud rates are 1200 to 19200.

The EVB includes an optional SCSI-2 port connection on the MPC505. The required parts are not provided, and the user may add them if the SCSI port is needed.

SPECIFICATIONS SUMMARY

The tables below summarize EVB specifications and minimum host computer requirements.

EVB Specifications

Characteristics	Specifications
MCU	MPC509 MCU is used to emulate the MPC505 MCU
I/O ports: I/O devices Host computer	RS-232C compatible RS-232C compatible
Temperature: Operating Storage	+25C 0 to +50 degrees C 0 to +50 degrees C
Relative humidity	0 to 90% (non-condensing)
Power requirements	+5 Vdc @ 2.0 A (min.)
Dimensions:	9.173 in. X 6.299 in. (23.3 cm X 16.0 cm)

Minimum Requirements

Characteristic	Specification
Host PC (optional)	SUN host computer with an RS-232C serial port. Requires a user-supplied communications program capable of emulating a dumb terminal.
Cable	RS-232C compatible
External Power Supply	+5 Vdc @ 150 mA (max.), fuse-protected @ 1.5 A

ORDERING INFORMATION

EVB Part Number

Evaluated MCU	EVB Part Number	Software
MPC505	MPC505EVB	MPCdebug

WARRANTY INFORMATION

Motorola provides a one year limited warranty.

CUSTOMER SUPPORT

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