features

- supports TI TMS320C3x/C2000/C5000/C6000 DSP
- replaces two MPSD/JTAG emulators
- ideal for debugging single- and multiprocessor TMS320 DSP environments
- comes standard in single-channel configuration with easy user expansion to dual-channel configuration
- comprises of PCI-bus interface mainboard, optional *MP510D/ECM* emulator expansion daughter-card module and up to two MPSD/JTAG pods
- PCI-bus interface mainboard provides one on-board emulation control channel for TMS320 DSP and on-board site for optional *MP510D/ECM* emulator expansion daughter-card module
- *MP510D/ECM* emulator expansion daughter-card module provides second optional emulation control channel for TMS320 DSP
- any number of *MIRAGE-P510D* interface boards can be installed into one PC in order to support multiple MPSD/JTAG scan-paths
- compatible with MPSD and JTAG pods for MicroLAB Systems *MIRAGE-30D/510D/510DX* and *UECM/UECMX* emulators
- compatible with JTAG pods for TI XDS560 emulator
- compact PCI-board design

MPSD and JTAG pod features

- MicroLAB Systems MPSD and JTAG pods for *MIRAGE-P510D* emulator are the same pods used with *MIRAGE-30D/510D/510DX* emulators and *UECM/UECMX* emulation modules
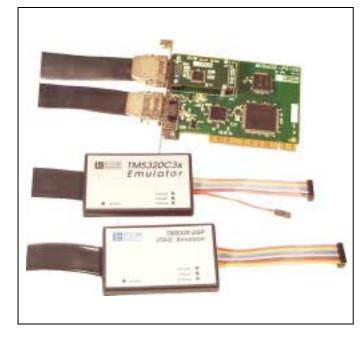- MicroLAB Systems MPSD pod:
  - connects to MPSD scan-path interface of target TMS320C30/C31/C32 DSP
  - LED indicators for pod activity, target DSP power, clock and reset signals
  - provides optional target DSP reset control for reliable emulation
- MicroLAB Systems JTAG pod:
  - connects to JTAG scan-path interface of target TMS320C2xx/VC33/C4x/C5x/C6x/C8x DSP
  - clock edge selector for TMS and TDI signals
  - LED indicators for pod activity, target DSP power, TCK and TRST signals
- enhanced JTAG pods for TI XDS560 emulator can connect to any channel of *MIRAGE-P510D* PCI-bus interface mainboard via optional plug-in adapter unit

software debugging tools

- TI Code Composer and TI Code Composer Studio debugger tools
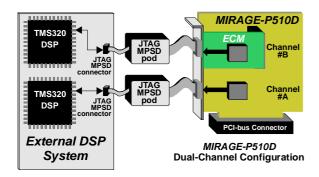
applications

- low-cost emulator for *TORNADO* DSP systems
- hardware debugging and software development for single- and multiprocessor TMS320 DSP systems
- run-time control and diagnostics of TMS320 DSP systems

MIRAGE-P510D
ECM
Channel #B
Channel #A
PCI-bus Connector
TMS320 DSP
JTAG MPSD connector
JTAG MPSD pod
External DSP System

MIRAGE-P510D
Dual-Channel Configuration

MIRAGE-510DP
Channel #B
Channel #A
PCI-bus Connector
External DSP System
TMS320 DSP
JTAG MPSD connector
JTAG MPSD pod

MIRAGE-P510D
Single-Channel Configuration

Overview

MIRAGE-P510D is dual-channel universal PCI-bus plug-in MPSD/JTAG emulator for Texas Instruments (TI) TMS320 DSP. *MIRAGE-P510D* emulator is a high-performance upward compatible replacement for *MIRAGE-510D/510DX/UECMX* ISA-bus plug-in emulators from MicroLAB Systems.

MIRAGE-P510D can be used for software development and diagnostics of target single- and multiprocessor DSP systems utilizing TI TMS320C2000, TMS320C5000, TMS320C6000 and TMS320C3x DSP (including TMS320VC33 DSP).

MIRAGE-P510D comes standard in single-channel configuration and can be easily user expanded by the user to dual-channel if required using its modular construction.

Any number of *MIRAGE-P510D* interface boards can be installed into one host PC in order to support as many target TMS320 DSP as it is required by user application. Moreover, each target JTAG path can contain multiple TMS320 DSP connected into one JTAG scan-path daisy chain in order to provide synchronous debugging.

MIRAGE-P510D emulator runs under the industry standard TI Code Composer Studio debug tools.

Construction

MIRAGE-P510D emulator features modular construction and comprises of PCI-bus plug-in interface board, optional *MP510D/ECM* emulator expansion daughter-card module, and either one or two external MPSD and/or JTAG pods.

MIRAGE-P510D PCI-bus plug-in interface board provides one on-board emulation controller and on-board site for optional *MP510D/ECM* emulator expansion daughter-card module, which can be installed in case dual-channel configuration is required.
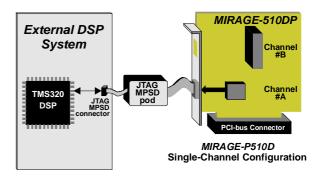
On-board emulation controllers of *MIRAGE-P510D* PCI-bus plug-in interface board and of *MP510D/ECM* emulator expansion daughter-card module are used for emulation control of MPSD (TMS320C30/C31/C32) and JTAG (TMS320C2000/VC33/C5000/C6000) scan-path interfaces of target TMS320 DSP via external MPSD or JTAG pod correspondingly, which connect directly to *MIRAGE-P510D* PCI-bus plug-in interface board and *MP510D/ECM* expansion emulator daughter-card module on one side and to MPSD/JTAG emulation interface of target TMS320 DSP on the other side.

MIRAGE-P510D emulator supports both MicroLAB Systems MPSD and JTAG pods compatible with *MIRAGE-510D/510DX/UECMX* ISA-bus plug-in emulators in order the customer can easily upgrade to the higher-performance MPSD/JTAG emulator at minimum cost.

Also supported are TI XDS530 enhanced JTAG pods for TI XDS560 emulator, which feature low weight and extended cable length. TI XDS530 enhanced JTAG pods for TI XDS560 emulator can be connected to any channel of *MIRAGE-P510D* emulator via optional plug-in adapter unit.

MPSD and JTAG pods

MPSD and JTAG pods connect emulation controller of *MIRAGE-P510D* emulator mainboard and of *MP510D/ECM* emulator expansion daughter-card module to MPSD and JTAG scan-path interfaces of target TMS320 DSP. MPSD pod should be used with TMS320C30/C31/C32 DSP, whereas JTAG pod should be used with TMS320C2000/C5000/C6000 DSP. Connection of MPSD and JTAG pods to scan-path interface of target TMS320 DSP is performed by means of TI XDS510 compatible headers.

Both MPSD and JTAG pods are compatible with all MicroLAB' emulation tools: *UECM/UECMX* universal emulation daughter-card modules and *MIRAGE-30D/510D/510DX* dual-channel emulators.

MPSD pod provides optional target DSP reset output for reliable emulation control and has LED indicators for pod activity, target DSP power, clock and reset control.

JTAG pod provides optional clock edge selector for JTAG TDI and TMS signals in order to increase JTAG clocking frequency, and has LED indicators for pod activity, target DSP power and JTAG clock (*TCK_RET*) and reset (*TRST*) signals.

Software Development Tools

MIRAGE-P510D emulator is supported by the industry standard TI Code Composer Studio debug tools under Windows 9x/NT/2000.

Compatible DSP software development tools include TI Code Composer Studio C/Assembler compiler tools.

Technical Specifications

***MIRAGE-P510D* PCI-bus Interface board**
Dimensions: 121x90 mm. Occupies one 5V PCI-bus slot. Contains PCI-bus interface, one MPSD/JTAG emulation controllers and site for *MP510D/ECM* emulator expansion daughter-card module.

***MP510D/ECM* emulator expansion daughter-card module**
Dimensions: 63x35 mm. Installs into on-board site of *MIRAGE-P510D* PCI-bus interface board.

Pods
Dimensions: 89x57x25 mm (3.5"x2.25"x1"). Primary 1m (40 inches) long flat cable for connection to *MIRAGE-P510D* PCI-bus interface board, and secondary 100mm (4 inches) long flat cable with 12-pin (MPSD) or 14-pin (JTAG) female header for connection to target TMS320 DSP.

Power
5v@0.9A with one MPSD or JTAG pod attached.