MSC8102ADS : MSC8102 Application Development System

The MSC8102ADS board uses the Freescale MSC8102 processor, a highly integrated system-on-a-chip device containing four StarCore™ SC140 DSP cores. The MSC8102 system interface unit (SIU) is similar to that of the MSC8101 device. The MSC8102ADS board serves as a platform for software and hardware development in the MSC8102 processor environment. On-board resources and the associated debugger enable developers to perform a variety of tasks, such as downloading and running code, setting breakpoints, displaying memory and registers, and connecting proprietary hardware via the expansion connectors. The MSC8102 processor enables these features to be incorporated into selected systems.

This board works seamlessly with the CodeWarrior® Development Studio for StarCore.

Hardware and software designers can use this board as a reference design and start immediately on their MSC8102 projects, long in advance of having any custom hardware. Therefore, use of this board enables StarCore application designers to accelerate development and achieve faster time to market.

System Requirements

- 0–30° C (room temperature).
- Dimensions: 233.35 mm × 160.0 mm × 1.8 mm.
- 9–18 V external DC power supply. For 12 V maximum current 1.2 A.

MSC8102ADS Features

- The ADS is based on the MSC8102 processor, which has a 16-bit core and 32- or 64-bit buses. Both the system bus and the Direct Slave Interface (DSI) run at a frequency of up to 100 MHz.
- MSC8102 interface:
  - DSI bus is a slave of the MSC8101 with its 60x-compatible bus.
  - DSI can be configured to 32-bit when the system bus is sized at 64-bit (default mode) or vise versa (DSI 64-bit/system bus 32-bit).
  - Memory controller Synchronous Dynamic RAM (SDRAM)

machine controls either 8 or 16 MB of SDRAM memory size on the system bus. Memory size depends upon the system bus configuration.

- 4 MB of 8-bit Flash memory for configuration/boot/program storage.
- Four MSC8102 TDM ports connect to the Infineon TSI PEF24471 device.
- Interconnection of T1/E1 timeslots between the Infineon FALC PEB2256 and the Dual CODEC MT92303.
- TDM bus on the J4 Compact PCI connector is also available.
- RS-232 Transceiver MAX3241 supports the UART port operation of the MSC8102.

- Board capabilities:
  - Programmable Hard Reset Configuration for MSC8102 is executed from the Flash memory or the DSI bus. This configuration type may also be forced from the BCSR.
  - Boot for the MSC8102 is available from the system bus (Flash). The MSC8102 device can also boot from the UART or TDM ports.
  - High density (MICTOR) Logic Analyzer connectors to facilitate MSC8102 signal measurement.
  - As expansion connectors, CompactPCI® connectors carry MSC8102 signals to off-board tools to enable chip verification and evaluation.
  - Debugging is performed via an external command converter connected to the EOnCE 14-pin headers.
  - EOnCE debug chain allows, via backplane, the connection of additional ADS boards.
  - After reset the Debug Enable/Disable and Debug Request options can be selected.
  - Board identification and board status can be read via the BCSR.
  - An SMB form RF-connector enables an external pulse generator to be connected to the clock input of the MSC8102.
  - Variant board configurations are available via the Dual-In-Line Package (DIP) Switch setting.
  - Board features push buttons for both the host and slave: power-on reset, soft reset, hard reset, and abort.
  - Board is powered by a single 9–18V external DC supply with on-board reverse polarity protection.
  - Voltage is provided to the board DC-DC converter, which has the following parameters: 3.3 V @ 4 A 10%.
  - DC-DC converter powers two voltage regulators: 1.3–1.7V adjustable linear voltage regulator for the MSC8102.
  - Software Option Switch provides 8 software options via the BCSR.
  - LEDs indicate power supply, peripheral enables, EE1 pin status, and software signals.

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MSC8102ADS Documentation

Documentation

Application Note

ID	Name	Vendor ID	Format	Size K	Rev #	Date Last Modified	Order Availability
AN2460	Getting Started With the MSC8102ADS	FREESCALE	pdf	138	1	11/12/2004	
AN2506	MSC8102 Design Checklist	FREESCALE	pdf	467	3	12/01/2004	
AN2601	MSC8102, MSC8122, and MSC8126 Thermal Management Design Guidelines	FREESCALE	pdf	143	2	9/16/2004	

Data Sheets

ID	Name	Vendor ID	Format	Size K	Rev #	Date Last Modified	Order Availability
DS91516A	CodeWarrior Development Studio Data Sheet	FREESCALE	pdf	2503	2.5	5/06/2004	-

Fact Sheets

ID	Name	Vendor ID	Format	Size K	Rev #	Date Last Modified	Order Availability
DS90116E	CodeWarrior Development Studio for StarCore DSP Architectures	FREESCALE	pdf	247	2.5	5/06/2004	
DS91612A	CodeWarrior Development Studio, SmartDSP OS	FREESCALE	pdf	238	2.5	5/06/2004	-
DS91614A	CodeWarrior Development Studio, StarCore Enterprise Compiler	FREESCALE	pdf	245	2.5	5/06/2004	-
DS91661A	CodeWarrior Development Kit, Smart Packet Telephony 810x	FREESCALE	pdf	241	2.5	5/06/2004	-

Product Brief

ID	Name	Vendor ID	Format	Size K	Rev #	Date Last Modified	Order Availability
MSC8102ADSPB	MSC8102 Application Development System (MSC8102ADS) Product Brief	FREESCALE	pdf	232	0	11/12/2003	

Reference Manual

ID	Name	Vendor ID	Format	Size K	Rev #	Date Last Modified	Order Availability
MSC8102ADSRM	MSC8102ADS User's Manual	METROWERKS	pdf	2540	1.2	5/03/2004	-

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Orderable Parts Information

Part Number	Description	Tool Type	Status	Budgetary Price($US)	Order Availability
8102/22/26ADS	APPLICATION DEVELOPMENT	Tested Packaged Module/Misc Hardware	Introduction Pending	-	-
CW8102PFC	MSC8102 PACKET	Tested Packaged Module/Misc Hardware	No Longer Manufactured	$3,000.00	Buy from Distributor
CWHMSC8102ADS	MSC8102 DEV BOARD	Tested Packaged Module/Misc Hardware	No Longer Manufactured	$4,995.00	Buy from Distributor
CWHMSC8102ADSH	MOVE TO CWH-STC-8102S-EX	Tested Packaged Module/Misc Hardware	No Longer Manufactured	$5,495.00	Buy from Distributor
CWSPT8102PDK	CW HW MSC8102 PKT TEL KI	Tested Packaged Module/Misc Hardware	No Longer Manufactured	-	-
CWSPT8102PFC	CW HW PKT TEL MEZZ CARD	Tested Packaged Module/Misc Hardware	No Longer Manufactured	-	-

NOTE:

- Not all orderable parts are offered through our online sampling program. For further assistance in selecting a similar part from within the program, please submit a Request for a sample order advice.
- Refer to Samples FAQ for more information.
- Looking for an obsolete part? Check our distributors' inventory

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Related Links

- Metrowerks Software Development Tools
- Metrowerks MSC8102ADS
- Metrowerks MSC8102HostADS
- MSC8102: Quad Core 16-Bit Digital Signal Processor
- Smart Packet Telephony Development Kit
- Enterprise Media Gateway
- Green Hills Software Tools
- Interpeak: Networking Protocol Stacks IPv4/IPv6

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