
SmartDesign MSS

External Memory Controller (EMC) Configuration



Table of Contents

1	Configuration Options	3
	Connectivity Options	3
2	Port Description	5
A	Product Support	7
	Contacting the Customer Technical Support Center	7
	Non-Technical Customer Service	7

1 – Configuration Options

The EMC provides a seamless interface to external memories. It supports asynchronous memories and synchronous SRAM memory types.

For complete details please refer to the [Actel SmartFusion Microcontroller Subsystem User's Guide](#).

The EMC Configurator helps you configure the SmartFusion MSS External Memory Controller.

Connectivity Options

The EMC provides 2 chip select, each addressing 64MB of address space. The EMC configurator provides two regions (chip select 0 and 1) that can be configured independently.

In this document, we provide a mapping between the EMC configurator's labels and the EMC register bits as defined in the [Actel SmartFusion Microcontroller Subsystem User's Guide](#).

Table 1-1 • Configurator Labels and EMC Register Bits

Configurator Parameter Label	Handbook Description
Memory Type: <ul style="list-style-type: none"> Asynchronous RAM Synchronous RAM NOR flash None 	External Memory Type: <ul style="list-style-type: none"> Asynchronous /PSRAM memory Synchronous memory NOR flash memory No memory assigned
Port Size: <ul style="list-style-type: none"> Byte Half Word 	Port Size: <ul style="list-style-type: none"> 8-bit EMD data bus 16-bit EMD data bus
Invert Read/Write Signal Polarity	Read/Write polarity
Read Latency for First Access (HCLK cycles)	Read data latency, first access
Read Latency for Remaining Accesses (HCLK cycles)	Read data latency, next access
Write Latency (HCLK cycles)	Write data latency
Use Alternate Chip Selection	Chip select falling edge
Configure BYTEN port as: <ul style="list-style-type: none"> Write Enable Byte Enable 	Write enable/byte enable
Pipeline Synchronous Read Cycle	Pipeline read
Pipeline Synchronous Write Cycle	Pipeline write
Inter Device Latency (HCLK cycles)	Inter device delay

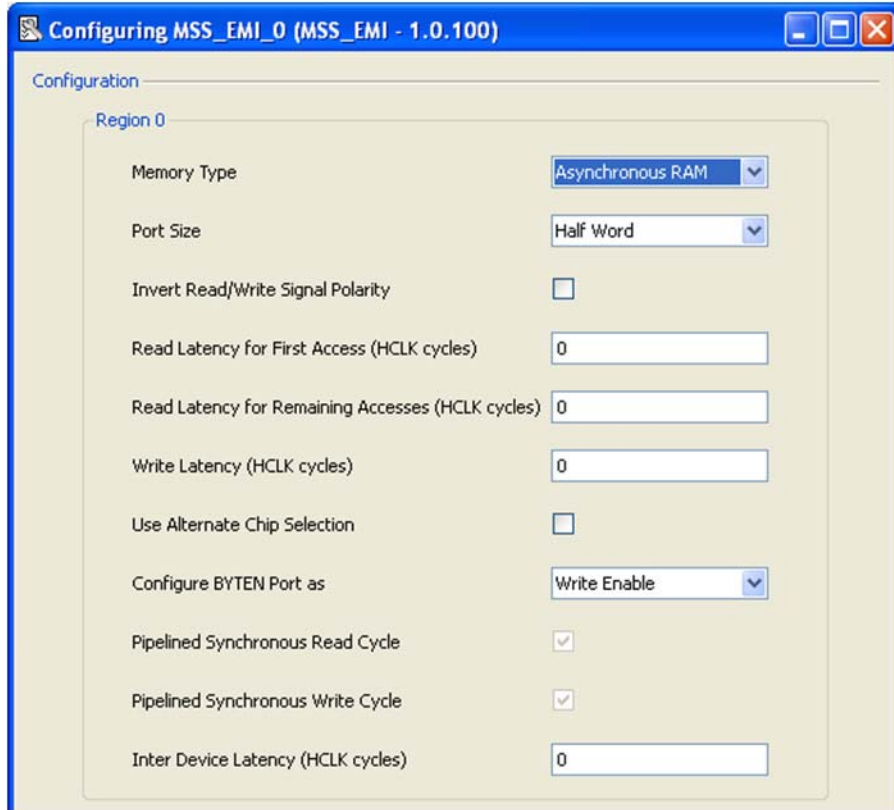


Figure 1-1 • Region 0 Configuration Screen

2 – Port Description

Table 2-1 • EMC Port Description

Port Name	Port Group	Direction	PAD?	Description
AB[25:0]	PADs	Out	Yes	Address bus
DB[N-1:0]	PADs	Inout	Yes	Bidirectional data bus. N is 8 or 16 based on the port size selection of the two EMC regions
BYTEN[1:0]	PADs	Out	Yes	Byte lane signals (BYTE_EN[1:0] in datasheet)
CS1_N	PADs	Out	Yes	Chip select 1
CS0_N	PADs	Out	Yes	Chip select 0
OEN1_N	PADs	Out	Yes	Output enable 1 (OE1_N in datasheet)
OEN0_N	PADs	Out	Yes	Output enable 0 (OE0_N in datasheet)
RW_N	PADs	Out	Yes	Read/write
CLK	PADs	Out	Yes	Clock

Notes:

- PAD ports are automatically promoted to top throughout the design hierarchy.
- Non-PAD ports must be promoted manually to the top level from the MSS configurator canvas to be available as the next level of hierarchy.

A – Product Support

The Microsemi SoC Products Group backs its products with various support services including a Customer Technical Support Center and Non-Technical Customer Service. This appendix contains information about contacting the SoC Products Group and using these support services.

Contacting the Customer Technical Support Center

Microsemi staffs its Customer Technical Support Center with highly skilled engineers who can help answer your hardware, software, and design questions. The Customer Technical Support Center spends a great deal of time creating application notes and answers to FAQs. So, before you contact us, please visit our online resources. It is very likely we have already answered your questions.

Technical Support

Microsemi customers can receive technical support on Microsemi SoC products by calling Technical Support Hotline anytime Monday through Friday. Customers also have the option to interactively submit and track cases online at My Cases or submit questions through email anytime during the week.

Web: www.actel.com/mycases

Phone (North America): 1.800.262.1060

Phone (International): +1 650.318.4460

Email: soc_tech@microsemi.com

ITAR Technical Support

Microsemi customers can receive ITAR technical support on Microsemi SoC products by calling ITAR Technical Support Hotline: Monday through Friday, from 9 AM to 6 PM Pacific Time. Customers also have the option to interactively submit and track cases online at My Cases or submit questions through email anytime during the week.

Web: www.actel.com/mycases

Phone (North America): 1.888.988.ITAR

Phone (International): +1 650.318.4900

Email: soc_tech_itar@microsemi.com

Non-Technical Customer Service

Contact Customer Service for non-technical product support, such as product pricing, product upgrades, update information, order status, and authorization.

Microsemi's customer service representatives are available Monday through Friday, from 8 AM to 5 PM Pacific Time, to answer non-technical questions.

Phone: +1 650.318.2470



Microsemi Corporation (NASDAQ: MSCC) offers the industry's most comprehensive portfolio of semiconductor technology. Committed to solving the most critical system challenges, Microsemi's products include high-performance, high-reliability analog and RF devices, mixed signal integrated circuits, FPGAs and customizable SoCs, and complete subsystems. Microsemi serves leading system manufacturers around the world in the defense, security, aerospace, enterprise, commercial, and industrial markets. Learn more at www.microsemi.com.

Corporate Headquarters

Microsemi Corporation
2381 Morse Avenue
Irvine, CA
92614-6233
USA

Phone 949-221-7100
Fax 949-756-0308

SoC Products Group

2061 Stierlin Court
Mountain View, CA
94043-4655
USA

Phone 650.318.4200
Fax 650.318.4600
www.actel.com

SoC Products Group (Europe)

River Court, Meadows Business Park
Station Approach, Blackwater
Camberley Surrey GU17 9AB
United Kingdom

Phone +44 (0) 1276 609 300
Fax +44 (0) 1276 607 540

SoC Products Group (Japan)

EXOS Ebisu Building 4F
1-24-14 Ebisu Shibuya-ku
Tokyo 150 Japan

Phone +81.03.3445.7671
Fax +81.03.3445.7668

SoC Products Group (Hong Kong)

Room 2107, China Resources Building
26 Harbour Road
Wanchai, Hong Kong

Phone +852 2185 6460
Fax +852 2185 6488