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***IGLOO2 HPMS***  
***AHB Bus Matrix Configuration***



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# Table of Contents

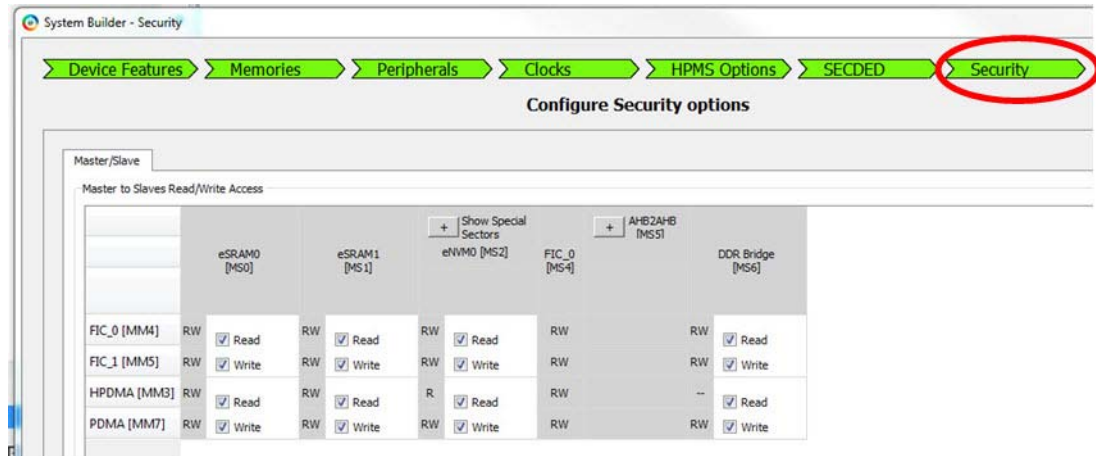
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Introduction .....	3
1 Configuration Options .....	4
Arbitration .....	4
A Product Support .....	6
Customer Service .....	6
Customer Technical Support Center .....	6
Technical Support .....	6
Website .....	6
Contacting the Customer Technical Support Center .....	6
ITAR Technical Support .....	7

# Introduction

The IGLOO2 System Builder automatically configures the memory mapping for you based on your selections of the memory to be used in the design. No user configuration of memory mapping is necessary.

You can use the HPMS AHB Bus Matrix configurator to configure the arbitration schemes. To configure the AHB Bus Matrix access options, use the Security tab in the System Builder (as shown in [Figure 1](#)).



**Figure 1 • Security Tab in IGLOO2 System Builder**

The values entered in the configurator will be loaded in the SYSREG block at power up or when the DEVRST\_N external pad is asserted/de-asserted.

In this document we provide a brief description of these options. For more details please refer to the [Microsemi IGLOO2 Silicon User's Guides](#).

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# 1 – Configuration Options

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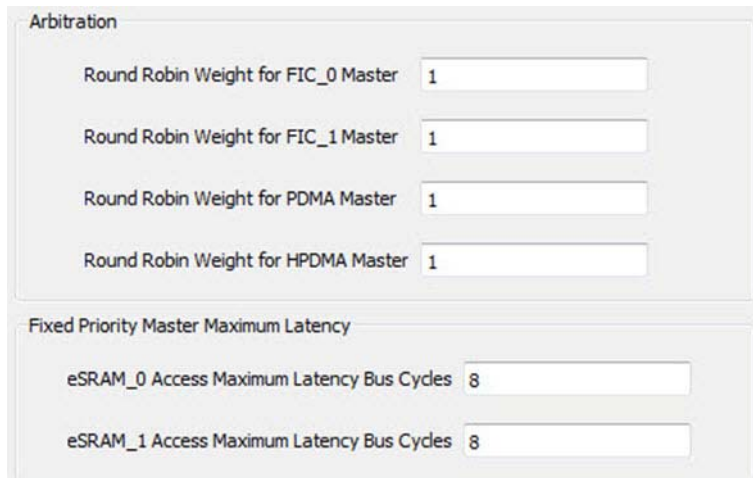
## Arbitration

Each of the slave devices on the AHB bus matrix contains an arbiter. Arbitration is done at two levels. At the first level, the fixed higher priority masters are evaluated for any access request to the slave. At the second level, the remaining busses are evaluated in round robin fashion for any access request to the slave.

Note that you can override the arbitration scheme dynamically in their run-time code on the fly. The following slave arbitration configuration parameters are user programmable registers in the SYSREG block.

You can configure the following parameters from the HPMS AHB Bus Matrix tab of HPMS Options.

- **Programmable weight** - MASTER\_WEIGHT0\_CR and MASTER\_WEIGHT1\_CR are 5-bit programmable registers located in the SYSREG block that define the number of consecutive transfers the weighted master can perform without being interrupted by a fixed priority master, or before moving onto the next master in the WRR cycle. The Round Robin Weight for each of the Masters is user-configurable for values between 1 and 32. The Default is 1 (Figure 1-1).



The screenshot shows a configuration window titled "Arbitration". It contains two sections. The first section, "Round Robin Weight", has four rows, each with a label and a text input field containing the value "1":  
- Round Robin Weight for FIC\_0 Master: 1  
- Round Robin Weight for FIC\_1 Master: 1  
- Round Robin Weight for PDMA Master: 1  
- Round Robin Weight for HPDMA Master: 1  
The second section, "Fixed Priority Master Maximum Latency", has two rows, each with a label and a text input field containing the value "8":  
- eSRAM\_0 Access Maximum Latency Bus Cycles: 8  
- eSRAM\_1 Access Maximum Latency Bus Cycles: 8

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**Figure 1-1 • Programmable Weight Configuration**

- **Programmable slave maximum latency** - Slave maximum latency, ESRAM\_MAX\_LAT are 3-bit programmable registers located in the SYSREG block that decides the peak wait time for a fixed priority master arbitrating for eSRAM access while the WRR master is accessing the slave. After the defined latency period, the WRR master must re-arbitrate for slave access. Slave maximum latency can be configurable from 1 to 8 clock cycles (8 by default). ESRAM\_MAX\_LAT is only supported for fixed priority masters addressing eSRAM slaves; it has no effect on WRR masters. The system designer can use this feature to ensure the processor latency for accesses to eSRAM is limited to a defined number of clock cycles. This is to facilitate limiting the ISR latency for real-time-critical functions (Figure 1-2).

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Fixed Priority Master Maximum Latency

eSRAM_0 Access Maximum Latency Bus Cycles	<input type="text" value="8"/>
eSRAM_1 Access Maximum Latency Bus Cycles	<input type="text" value="8"/>

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**Figure 1-2 • Programmable Slave Maximum Latency Configuration**

## A – Product Support

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Microsemi SoC Products Group backs its products with various support services, including Customer Service, Customer Technical Support Center, a website, electronic mail, and worldwide sales offices. This appendix contains information about contacting Microsemi SoC Products Group and using these support services.

### Customer Service

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

From North America, call 800.262.1060

From the rest of the world, call 650.318.4460

Fax, from anywhere in the world, 408.643.6913

### Customer Technical Support Center

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

### Technical Support

Visit the Customer Support website ([www.microsemi.com/soc/support/search/default.aspx](http://www.microsemi.com/soc/support/search/default.aspx)) for more information and support. Many answers available on the searchable web resource include diagrams, illustrations, and links to other resources on the website.

### Website

You can browse a variety of technical and non-technical information on the SoC home page, at [www.microsemi.com/soc](http://www.microsemi.com/soc).

### Contacting the Customer Technical Support Center

Highly skilled engineers staff the Technical Support Center. The Technical Support Center can be contacted by email or through the Microsemi SoC Products Group website.

#### Email

You can communicate your technical questions to our email address and receive answers back by email, fax, or phone. Also, if you have design problems, you can email your design files to receive assistance. We constantly monitor the email account throughout the day. When sending your request to us, please be sure to include your full name, company name, and your contact information for efficient processing of your request.

The technical support email address is [soc\\_tech@microsemi.com](mailto:soc_tech@microsemi.com).

## My Cases

Microsemi SoC Products Group customers may submit and track technical cases online by going to [My Cases](#).

## Outside the U.S.

Customers needing assistance outside the US time zones can either contact technical support via email ([soc\\_tech@microsemi.com](mailto:soc_tech@microsemi.com)) or contact a local sales office. [Sales office listings](#) can be found at [www.microsemi.com/soc/company/contact/default.aspx](http://www.microsemi.com/soc/company/contact/default.aspx).

## ITAR Technical Support

For technical support on RH and RT FPGAs that are regulated by International Traffic in Arms Regulations (ITAR), contact us via [soc\\_tech\\_itar@microsemi.com](mailto:soc_tech_itar@microsemi.com). Alternatively, within [My Cases](#), select **Yes** in the ITAR drop-down list. For a complete list of ITAR-regulated Microsemi FPGAs, visit the [ITAR](#) web page.



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