TOPIC
EMBEDDED PRODUCTS

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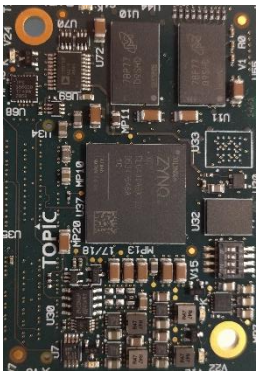
Miami Zynq Lite System on Module



- Xilinx Zynq-7000® based System on Module (Z7010/Z7020/Z7007S/Z7014S)
- System-on-Module provides out-of-the-box high bandwidth connectivity and system integration capabilities with numerous I/O flexibility
- High-performance processing platform with superior performance/watt ratios
- Large QSPI boot flash for fast booting
- Dyplo ready, enabling operating system style of infrastructure on the FPGA
- Actively maintained and supported Linux BSP, bootloader and reference designs for processor and FPGA fabric

Overview

The Miami System on Module (SoM) is based on the Xilinx Zynq®- 7010/7020/7007s/7014s System on Chip (SoC). It is a highly integrated and compact off-the-shelf solution for today's high-performance embedded systems. The module combines a high performance (ARM-based) application microprocessor with FPGA logic in a single chip. It integrates all system components required to bring the system alive including memory, power supply, debugging and connectivity. Miami provides a best in class platform for balancing both performance and power, making a perfect solution for applications that require high processing power, high speed interfaces, a high level of reliability, the ability to optimize system interfaces, and perform real-time analytics and control. The module comes with an actively supported main-line Linux distribution, including a template FPGA implementation connecting to the carrier board connector. Typical application areas are any existing applications that use an applications processor together with an FPGA, including but not limited to (secure) communications, aerospace & defense, audio / video applications, medical and industrial imaging.

What's included

- Xilinx Zynq®-7010/7020/7007s/7014s based System on Module
- Single chip provides high bandwidth connectivity Between PS and PL
- Low Power operation with 32-bit wide DDR3L 1GB
- QSPI Flash, 64 MB
- USB 2.0 high-speed On-the-Go/Host/Device interfaces
- Network connectivity: 10/100/1000M Ethernet controller

Key Features

- Fast boot BSP with main-line Linux distribution support
- Selectable boot source
- Dimensions: 65x46 mm
- On-board high efficiency power supplies
- Software selectable carrier board I/O voltages
- High performance SAMTEC board-to-board connector
- Support for Gigabit Ethernet (PHY)
- IEEE1588v2 and IEEE 802.3az support
- Serial I/O, including SPI, I2C, UART
- Debug support
- Industrial temperature range (-40 °C +85 °C)

Dsign

Topic provides a wide variety of development services:

- Customization services
- Development of customer specific designs
- Application Software Development
- Operating System Porting as well as BSP/ driver development
- FPGA content development and board design
- E.g. IEC60601, ISO13485 and ISO14971 related development services, Services Celenec.

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Miami Som	7010	7020	7007S	7014S
FPGA Technology				
7 Series PL Equivalent	Artix®-7	Artix®-7	Artix®-7	Artix®-7
Logic Cells	28K	85K	23K	65K
LUTs	17,600	53,200	14,400	40,600
FlipFlops	35,200	106,400	28,800	81,200
RAM	2.1Mb	4.9Mb	1.8Mb	3.8Mb
DSP slices	80	220	66	170
Processor Units				
CPU architecture	ARMCortex-A9 MPCore (Dual-Core)		ARM® Cortex™-A9 MPCore™ (Single core)	
External Memory Support	DDR3 L			
On-chip Memory	256KB			
L1 Cache	32kb Instruction, 32 KB Data per processor			
L2 Cache	512kb			
SDRAM	DDR3/DDR3L @ 533MHz, 512MB			
NOR	32 MB Quad SPI			
EEPROM	32 Kb I²C storage			
DMA Channels	8 (4 dedicated to PL)			
Peripherals	2x UART, 2x CAN 2.0B, 2x I2C, 2x SPI, 4x 32b GPIO			
Peripherals w/ built-in DMA(2)	2x USB 2.0 (OTG), 2x Tri-mode Gigabit Ethernet, 2x SD/SDIO			
User programmable/configurable Interfaces				
Analog	Up to 14 channels differential, 12 bits			
Serial	UART, 12C, SPI, 12 S, User defined			
Video	LVDS, TFT, VGA, LCD			
USB	USB OTG 2.0			
CAN	Up to 2x CAN			
Debug	Debug UART, console			
Miscellaneous	GPIOs / SD/SDIO 2.0/MMC 3.31 compliant controllers			
Dedicated interfaces on SoM connectors				
Network	10/100/1000Mbps Ethernet, IEEE1558 support			
USB	USB OTG 2.0			
JTAG	PL JTAG Chain for carrier board programming			
Power Supply				
Input	3.3V via connector On-board voltage regulation			
Output	Configurable I/O standards and voltages			
Control	Current measurement for PL and PS			
Software				
Bootloader/BSP	U-Boot			
Boot options	JTAG, NOR, (external) SD-card			
Operating System	Topic Linux 4.x distribution via GitHub (META-TOPIC)			
Dyplo® compatible platform	Yes			
Mechanical and environmental				
Dimensions	65mm x 45mm			
Connectors	1x 120 pin Samtec high performance mezzanine carrier board connectors			
Temperature	Industrial graded, IEC 60068-2-38 2009			
Humidity	0%-95%, non-condensing, IEC 60068-2-38-2009			
EMC	EN 55032			
EMI	IEC 61132, EN 61326, IEC 55024			

Florida carrier boards

Miami System on Modules are supported by evaluation and reference boards and designs to accelerate your overall design cycle with commonly used peripheral functions. Visit *www.topic.nl* for an overview of applicable boards and board support packages for your Miami System on Modules.