TOPIC
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Miami+ Zynq System-on-Module

- Xilinx Zynq-7000® based System on Module (Z7035/Z7045/Z7100)
- 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
- Dual QSPI boot flash for very 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
- 16(x) Gigabit transceivers available for e.g. PCIe GEN2 support, USB 3.0, 10Gbit Ethernet, CoaXPress, Aurora, HDMI

Overview

The Miami+ Zynq System on Module (SoM) is based on the Xilinx Zynq®-7035/7045/7100 System on Chip (SoC). It is a highly integrated and compact commercial-off-the-shelf solution for today's high performance embedded systems. The module combines a high performance, ARM dual-core Cortex A9-based application processor with FPGA logic in a single chip. The SoM integrates all system components required to bring the board level system alive including memories, power supply, connectivity and debugging facilities.

The Miami SoM 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 connectors. 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.

An overview of all features of the board is listed in the table on the backside of this flyer, including the different configuration options to meet your volume demands.

Key Features

- Fast boot BSP with main-line Linux distribution support
- Selectable boot source
- Dimensions: 85x68.5 mm
- On-board high efficiency power supplies
- High performance SAMTEC board-to-board connectors
- Support for SATA3
- Support for PCI-Express GEN2 (8 lanes)
- Support for Gigabit Ethernet (PHY)
- IEEE1588v2 and IEEE 802.3az support
- Serial I/O, including SPI, I2C, UART
- Gigabit transceivers for 40Gbit Ethernet, CoaXPress, etc.
- Industrial temperature range (-40 °C +85 °C)
- Visit *www.topicproducts.com/miami/* for access to design resources and support

Dsign

Topic Products 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

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MIAMI+ SOM	XC7Z035	XC7Z045	XC7Z100
FPGA			
Device *	XC7Z035-FFG900-2	XC7Z045-FFG900-2	XC7Z100-FFG900-2
Technology	Kintex®-7	Kintex®-7	Kintex®-7
Logic cells	275K	350K	444K
Flip Flops	343.800	437.200	554.800
Block RAM (Mbit)	17.6	19.1	26.5
DSP slices	900	900	2020
GTX transceivers	16x (10.3125 Gb/s each)	16x (10.3125 Gb/s each)	16x (10.3125 Gb/s each)
Processor system			
CPU	Architecture ARM Cortex-A9 (dual core)		
CPU Performance *	2x 800MHz	2x 800MHz	2x 800MHz
Co-Processor	2x ARM NEON™		
Memory			
Cache	L1: 32KB instruction/core, 32KB data/core, L2: 512KB		
SDRAM *	DDR3/DDR3L @ 533MHz, 1 GB (connected to CPU)		
SDRAM *	DDR3/DDR3L @ 533MHz, 1 GB (connected to FPGA)		
NOR *	2x Quad-speed SPI, 64MB		
EEPROM	3 Kb for secure (SHA-256) storage, 4 Kb normal storage		
User programmable/configurable interfaces on SoM connector			
Gigabit transceiver links	16x (SATA-2/3, PCIe GEN3/4, 40Gb Ethernet, USB 3.0, CoaXPress, HDMI)		
Bank 0, 2, 3	49x + 47 + 48 Configurable 1V8, 2V5 and 3V3 user I/O (HR)		
Bank 1	48x Configurable 1V8 user I/O (HP)		
Bank 4	38x PS controlled 1V8 I/O (MIO)		
Dedicated interfaces on SoM connector			
Network	1000Mbps Ethernet, CAN		
USB	USB OTG 2.0		
Gigabit transceivers	SATA-3, PCIe GEN2 8 lanes, Aurora, CoaXPress, HDMI, USB 3.0		
JTAG	PL and PS JTAG chain for shared debugging		
Power supply input	15V/3A		
Logic I/O supply output	Configurable I/O standards and voltages		
Software support			
Bootloader / BSP	U-Boot		
Boot resources	JTAG, NOR, SD-Card		
Operating System	Topic Linux 4.x distribution on GitHub		
FPGA reference design	Vivado BSP and module configuration		
Dyplo® compatible Platform	Yes		
Mechanical and environmental			
Dimensions	85mm x 68.5mm		
Connectors	2x 120 pins + 1x 180 pins Samtec high performance mezzanine carrier board connectors + 3 pins connector for external Fan		
Temperature *	Industrial grade		
Qualification tests			
Temperature and humidity	IEC 60068-2-1 (Cold), IEC 60068-2-2 (Dry heat), IEC 60068-2-78 (Damp heat)		
EMC/EMI	EN 55032, IEC 61132, EN 61326, IEC 55024		
Shock and vibration	MIL-STD-202G (method 204D), MIL-STD-202G (method 213B)		

** Other configurations possible at higher volumes.*