

ACCELERATE YOUR DEVELOPMENT!



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)

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

| 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-Ag (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 | | |
| Dypllo® 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.

Florida carrier boards

Miami+ System on Modules are supported by evaluation and reference boards/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+ Zynq-7000 SoM.