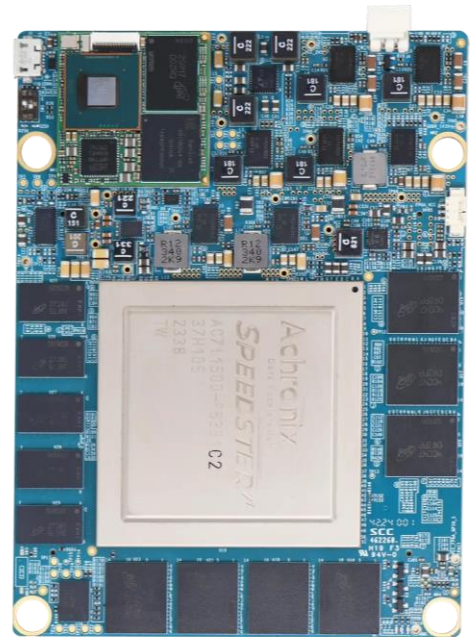


iW-RainboW-G64M

Achronix Speedster7t System on Module

iWave's FPGA SOM equipped with the Achronix Speedster7t ACT1500 device, features a 2D-NoC and includes 7 independent GDDR6 memory controllers, along with one autonomous 64-bit DDR4 controller featuring ECC support. 32 SERDES transceivers, enabling connectivity for 400G Ethernet and PCIe Gen5.0 over highspeed board to board connectors.

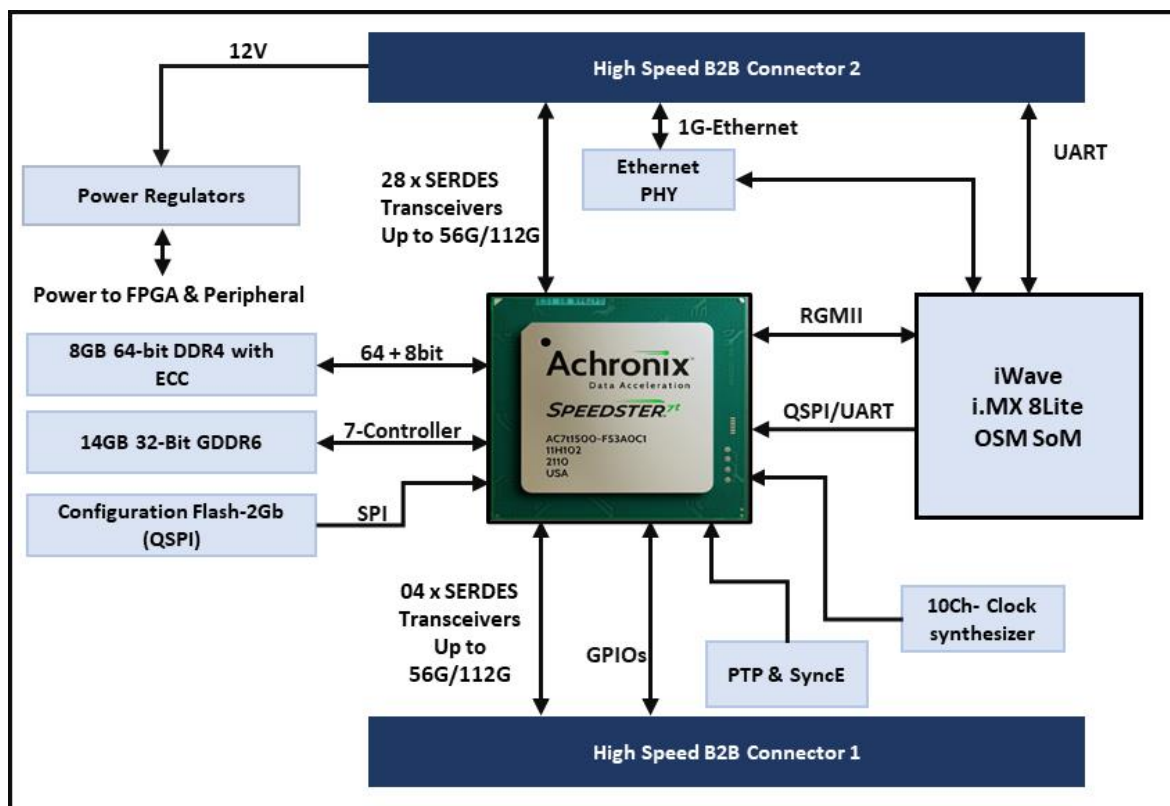
In addition, iWave's OSM Module is integrated on SoM which have Dual Core ARM Cortex-A35 and Cortex-M4F processor, for intercommunication between FPGA and other on SoM control.



Highlights

- ❖ Achronix Speedster7t 1500t FPGA with F53 package
- ❖ 8GB DDR4 with ECC (64bit + 8bit)
- ❖ 14GB GDDR6 (7 x 2GB Devices)
- ❖ 32 x SEDRES (with line rates of 53.125Gbps Raw SERDES & 106.25Gbps Ethernet)
- ❖ Gigabit Ethernet from OSM
- ❖ Dual Core i.MX 8X Lite OSM Module with 2GB LPDDR4 and 8GB eMMC Flash
- ❖ Two 400pin High-Speed board to board Connectors
- ❖ Commercial and Industrial Grade Support

Block Diagram



Technical Specifications

Achronix FPGA	- Achronix Speedster7t 1500t FPGA with F53 package 692K 6-input LUTs 2560 LRAMs and 2560 BRAMs 2560 MLPs
CPU	iWave OSM – SE LGA Module with i.MX 8X Lite Processor
Memory Interfaces	8GB DDR4 with ECC 14GB GDDR6 RAM 2Gb SPI Flash
On SOM Features	- iWave i.MX 8X Lite OSM Module - Clock Synthesizer for On-SOM Clocks - PTP & SyncE Network Synchronizer - Temperature Sensor & Voltage Monitoring - TPM2.0 Module - Fan Header
FPGA to OSM Interfaces	- RGMII - QSPI - UART

Board to Board Connector1 Interfaces	From FPGA 4 x SERDES Channels (with line rates of 53.125Gbps Raw SERDES & 106.25Gbps Ethernet) - FPGA IOs: 16 Differential pairs/32 Single-ended I/Os From OSM - GPIOs x 7
Board to Board Connector2 Interfaces	From FPGA 28 x SERDES Channels (with line rates of 53.125Gbps Raw SERDES & 106.25Gbps Ethernet) From OSM - Gigabit Ethernet x 1 Port - USB 2.0 OTG x 1 - Debug UART - I2C
Operating Temp.	-40°C to +85°C (Industrial Grade)
Form Factor	120mm x 90mm
Power Input	12V through B2B connector2
Environment Spec.	REACH & RoHS3 Compliant

Ordering Information

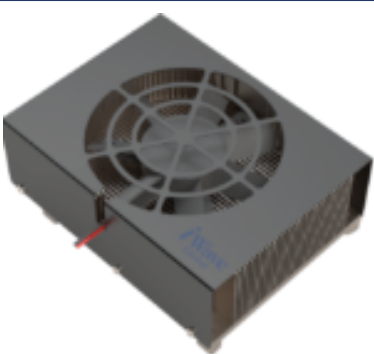
iG-64M-7t1501-6G014G-4E08G-IAA	Speedster7t 1500 (-1) Speed FPGA with 14GB GDDR6, 8GB DDR4, Industrial grade
iG-64M-7t1502-6G014G-4E08G-IAA	Speedster7t 1500 (-2) Speed FPGA with 14GB GDDR6, 8GB DDR4, Industrial grade
iG-64M-7t1501-6G014G-4E08G-CAA	Speedster7t 1500 (-1) Speed FPGA with 14GB GDDR6, 8GB DDR4, Commercial grade
iG-64M-7t1502-6G014G-4E08G-CAA	Speedster7t 1500 (-2) Speed FPGA with 14GB GDDR6, 8GB DDR4, Commercial grade

Product accessories



Development Kit

Achronix Speedster7t Devkit features FMC+ (HPC), PCIe Gen4 x 16, Gigabit Ethernet, USB2.0, Debug UART with 160mm x 210mm Form Factor



Thermal Solutions

For any highly integrated System on Modules, thermal design is very important factor. iWave Supports Fan Sink solution for Achronix FPGA SOM.

Applications

- **Computational Storage**

Computational Storage enhances data processing by offloading compute tasks closer to the storage, enabling faster data access, reduced latency, and improved system performance.

- **AI/ML**

AI/ML applications leverage high-performance computing and acceleration platforms to enable faster data processing, real-time analytics, and intelligent decision-making across edge and cloud environments.

- **Smart NIC**

SmartNIC applications enable advanced network acceleration, offloading, and security features, optimizing data processing and improving network performance in data centers and cloud infrastructure.

A Global Leader in Embedded Systems Engineering and Solutions

Since 1999, we have pioneered leadership in embedded systems technology, establishing ourselves as a strategic embedded technology partner for advanced solutions. Our comprehensive portfolio encompasses ARM and FPGA System on Modules, COTS FPGA solutions, and ODM solutions which include Telematics, Gateways & HMI Solutions.

Beyond our robust product ecosystem, we provide comprehensive ODM support with specialized custom design and manufacturing capabilities, enabling customers to accelerate and optimize their product development roadmaps. With a strategic focus on industrial, automotive, medical, and avionics markets, we deliver innovative technology solutions to global clients.

mktg@iwave-global.com

iWave

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iWave USA

Campbell, California

iWave Global

Ras Al Khaimah, UAE

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