

## G64-KFibre-400G

# Achronix Speedster 7t FPGA based Network and Storage Accelerator SmartNIC Card - 400G

The G64-KFibre-400G, built on the Achronix Speedster 7t FPGA, offers a high-performance SmartNIC prototyping platform designed for advanced, bandwidth-heavy applications. Perfect for complex computing and network infrastructures, it is optimized to handle the most demanding workloads.

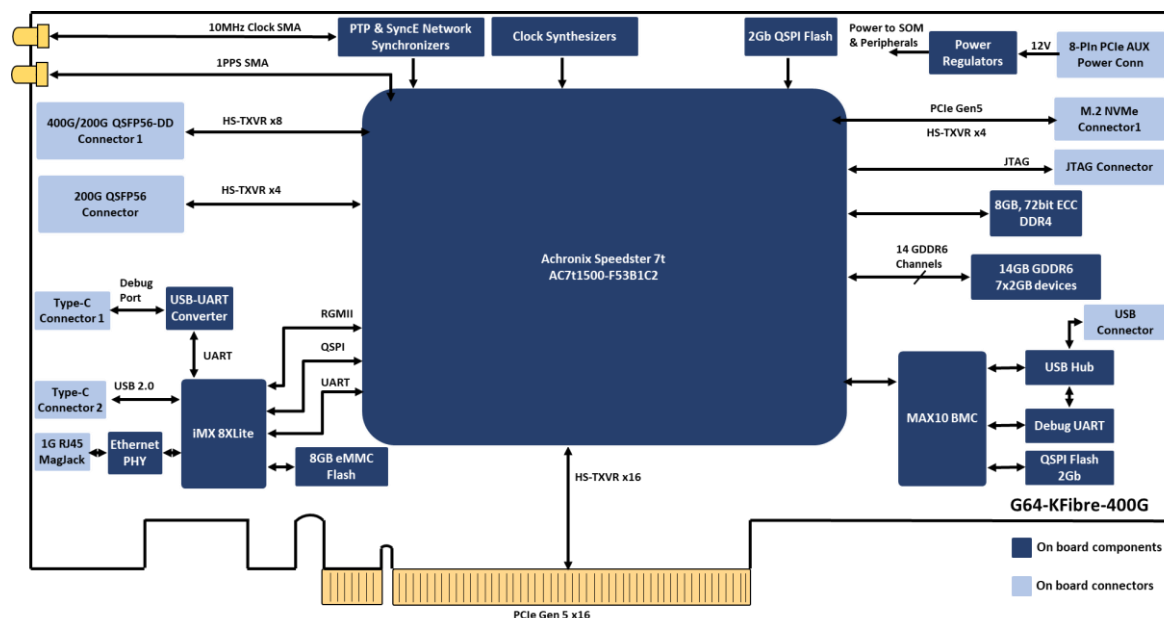
The platform features 14 GDDR6 channels, one DDR4 memory channels, PCIe Gen5 x16 connectivity, and support for high data rates up to 400Gbps. An Arm Cortex-A35 64-bit Processor with one LPDDR4 memory channel provides increased flexibility and control.



## Highlights

- ❖ 254mm x 111.15mm, 3/4 Length, Full Height, Dual Slot PCIe Card.
- ❖ Achronix Speedster7t 1500t FPGA with F53 package
- ❖ PCIe Gen5 x16 Host Interface
- ❖ QSFP-DD Cages: QSFP56-DD (400GbE), QSFP Cage (200GbE)
- ❖ MAX10 Board Management Controller
- ❖ Single Gen5 M.2 NVMe Slots

1003



## Technical Specifications

|                         |                                                                                                                                                                                                                                                     |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FPGA                    | <ul style="list-style-type: none"><li>• Speedster7t 1500t</li><li>• -2 Speed Grade</li><li>• 32 x 112Gb Serdes Transceiver</li><li>• 1,546k System Logic Cells (SLCs)</li><li>• 692K Look-Up Tables (LUTs)</li><li>• 195Mb on-chip Memory</li></ul> |
| Memory                  | <ul style="list-style-type: none"><li>• 7 x 2GBx32 GDDR6 @256 Gbps per channel</li><li>• 1 x 8GBx72 DDR4-2666MHz @341.2 Gbps</li></ul>                                                                                                              |
| PCIe Host Interface     | Gen5 x16                                                                                                                                                                                                                                            |
| PCIe Bracket Connectors | <ul style="list-style-type: none"><li>• 1 x QSFP56-DD</li><li>• 1 x QSFP56</li><li>• 1 x USB 2.0 Type-C Connector OSM</li><li>• 1 x USB UART Type-C Connector OSM</li><li>• 2 x SMA Connectors</li><li>• 1 x RJ45 Connector OSM</li></ul>           |
| Network Interfaces      | <ul style="list-style-type: none"><li>• 1 x QSFP56</li><li>• 1 x QSFP56-DD</li></ul>                                                                                                                                                                |
| Line rates (Ethernet)   | <ul style="list-style-type: none"><li>• QSFP56-DD : 1 x 400G,2 x 200G,4 x 100G,8 x 50G,2 x 40G,8 x 25G,8 x 10G</li><li>• QSFP56: 1 x 200G,2 x 100G,4 x 50G,1 x 40G,4 x 25G,4 x 10G</li></ul>                                                        |
| Open Std Module (OSM)   | <ul style="list-style-type: none"><li>• i.MX 8X Lite</li><li>• 1 x Dual-core 64-bit Arm Cortex-A35</li><li>• 1 x Cortex-M4F core</li><li>• 1 x USB 2.0</li></ul>                                                                                    |
| Storage Media           | 1 x 2Gb QSPI<br>1 x 8GB eMMC (OSM)                                                                                                                                                                                                                  |

|                       |                                                                                                                                                                                                                                                                                          |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NVMe                  | 1 x Gen5 x4 M.2                                                                                                                                                                                                                                                                          |
| BMC                   | <ul style="list-style-type: none"><li>• MAX10</li><li>• MCTP over SMBus*</li><li>• RSU*</li><li>• MCTP over PCIe VDM*</li><li>• PLDM for Monitor and Control*</li><li>• NCSI RBT*</li><li>• FPGA temperature*</li><li>• Pluggable module temperature*</li><li>• Power sensors*</li></ul> |
| Host Software         | <ul style="list-style-type: none"><li>• Linux OS</li><li>• Management Tools</li><li>• BMC libraries *</li><li>• DPDK</li></ul>                                                                                                                                                           |
| HPS Operating System  | Linux                                                                                                                                                                                                                                                                                    |
| Operating Temperature | 0°C to 45°C                                                                                                                                                                                                                                                                              |
| Power Input           | <ul style="list-style-type: none"><li>• 75W max from PCIe x 16 Host</li><li>• 8Pin ATX Power Connector in Back Panel Power Droop</li><li>• Sharing (to maximize power when needed)</li></ul>                                                                                             |
| Cooling               | Active cooling (Default)                                                                                                                                                                                                                                                                 |
| Form Factor           | <ul style="list-style-type: none"><li>• Full Height, Dual Slot PCIe Card</li><li>• 254mm x 111.15mm (¾ Length PCIe)</li></ul>                                                                                                                                                            |
| Enclosure             | Aluminum alloy 5052- H32                                                                                                                                                                                                                                                                 |
| Compliance            | REACH & RoHS Compliant *<br>CE*                                                                                                                                                                                                                                                          |

# Ordering Information

G64-KFibre-400G

Achronix Speedster7t 1500t FPGA, Full Length, Full Height, Dual Slot, Active cooling - 400G SmartNIC

## Product accessories

### Auxiliary Power Supply

Auxiliary Power Supply ensures SmartNIC stability during high-performance operation.

### Thermal Solutions

For any highly integrated SmartNIC product, thermal design is a very important factor. iWave supports Heat/Fan Sink for Card.

### PCIe Bracket

Facilitates secure SmartNIC installation, ensures compatibility with standard chassis, and withstands mechanical stress.

### Card Backplate

To support secure installation and mechanical stability of the SmartNIC, a Card Backplate is provided.

## Applications

- **Data Center for workloads**

NGFW, Stateful Rules Engine, DDoS Prevention, Blacklist Filtering, Lawful Intercept, Unstructured parallel line-rate String Search, Parallel Wire-rate Packet Capture

- **High-Performance Computing**

Real Time Unstructured Search, Hashing, Compression and Cryptography, Financial Computing – High Frequency Trading, Streaming Edge Applications

- **Data acceleration**

Deduplication, File and Packet, Key Value Store, Load Balancing

## Additional Services

- **Custom hardware integration**

Expanded specs and add-ons designed to meet your needs

- **Preloaded Servers**

Ready-to-deploy in servers with flexible configurations

- **IP and Solutions**

We reduce risk in both development and deployment with proven IP and solutions

- **Service**

Documentation and issue tracking made easy at the iWave Support Center

# 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.

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