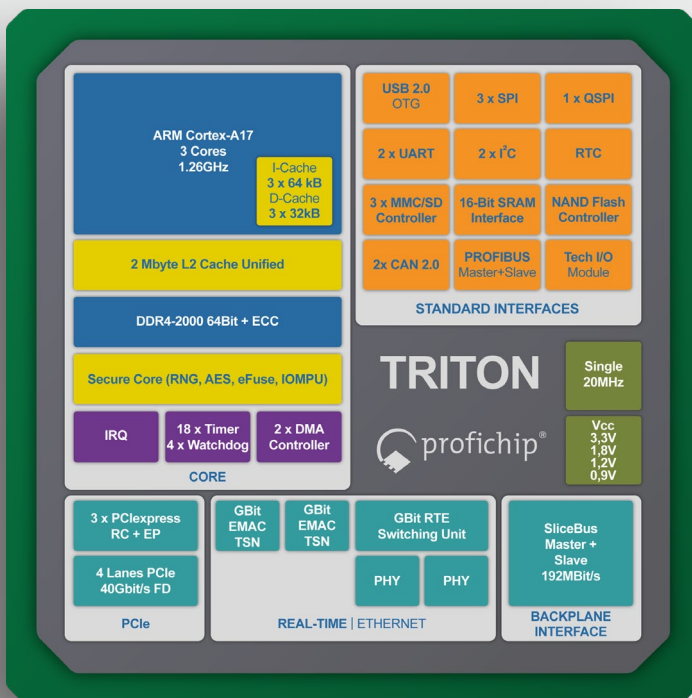


# profichip<sup>®</sup> TRITON

Gigabit Ethernet Communication Controller, PLC, Backplane Master and Motion Controller in One Chip



EtherCAT<sup>®</sup>

PROFINET<sup>®</sup>

EtherNet/IP<sup>™</sup>

PROFIBUS<sup>®</sup>

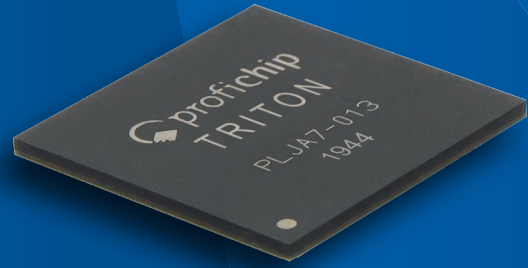
MECHATROLINK

Modbus

CANopen

## Main Features

- Future ready with TSN support, DDR4, PCI-Express, and Security Core
- No heatsink needed thanks to low power consumption
- Low Total Cost of Ownership due to integrated functionalities (Backplane Master, PHYs, etc.)
- 3 cores with high single thread performance best suited for motion and PLC tasks



Triton combines industrial gigabit Ethernet communication with a fast and reliable backplane system as well as a powerful motion/automation multicore processor in one product with low power dissipation.

### Discover New Ways

- For high-speed number crunching
- For industrial real-time communication
- For reliable and synchronous backplane communication
- Everything secure and with low power

### Processor System

- 3 x ARM Cortex A17 cores with up to 1.26 GHz
- 64-bit floating point unit per core
- 64/32 kB instruction/data cache
- 2 Mb of L2 cache (with ECC)

### Memory Interfaces

- 64-bit DDR4-2000 RAM (16 GB/s bandwidth, with ECC support)
- MMC/SD card controller (3 instances)
- QuadSPI flash controller
- 8/16-bit SRAM controller (Master/Slave)
- 8-bit NAND flash controller

### Serial Interfaces

- PCIeexpress up to Gen3, max. 4 lanes, max. 3 controllers, max. 40 Gbit/s in Full Duplex, RC/EP virtual channels, time synchronization
- USB 2.0 host/device controller (480 Mbit/s)
- 2 x UART (12 Mbit/s) (2 instances)
- 3 x SPI Master/Slave controller, max. 78 Mbit/s (3 instances)
- 2 x I<sup>2</sup>C (2 instances)

### Security

- Secure boot (signed and encrypted)
- integrated eFuse for customer key storage
- AES 256 GCM hardware acceleration
- True random number generator
- IOMPU (memory protection for I/O devices)

### Advanced Real-Time Gigabit Ethernet Solution

- 4 x Gbit Ethernet port
- 2 x integrated 100BaseT Ethernet PHYs
- All 4 Ethernet ports can be combined as one switch
- in different configurations (software-defined networking)
- Software-defined protocols
  - » PROFINET<sup>®</sup> IO-Device RT/IRT
  - » EtherCAT Slave/Master
  - » Mechatrolink-III/IV Master/Slave
  - » EtherNet/IP Adapter
  - » TSN ready
  - » More on demand

### Classic Fieldbus Options

- 2 x PROFIBUS<sup>®</sup> Master (12 Mbit/s) (2 instances)
- PROFIBUS Slave (12 Mbit/s)
- 2 x CAN controller (1 Mbit/s) (2 instances)

### Fieldbus Options and Stacks

- Licensed with TRITON
  - » PROFIBUS Slave DP-V0
  - » PROFINET IO Device RT/IRT library
  - » EtherCAT Slave
- Purchasing stacks (source codes)
  - » PROFIBUS Slave DP-V1/V2
  - » PROFIBUS Master
  - » PROFINET IO Device RT/IRT
  - » PROFINET IO Controller RT
  - » EtherNet/IP Adapter
  - » Mechatrolink-III/IV Master/Slave
  - » CANopen
  - » Others on demand

### Backplane Bus Solution: SliceBus<sup>®</sup>

- Master for I/O Modules
- Up to 64 nodes
- High-speed 192 Mbit/s
- Alarm and error handling
- Time Synchronization

### Other Features

- DMA controllers (2 instances)
- IRQ controller
- Watchdog (4 instances)
- 32-bit timers (18x)
- Technology Function Module (TechIO)
  - » Max. 32 In / 22 Out (shared pins)
  - » Configurable digital input filter
  - » 4 counter channels
  - » Ready for incremental up to 4 encoders
  - » 4 PWM channels
  - » 2 SSI encoder interfaces

### Package

- FCBGA784:  
23 x 23 mm<sup>2</sup>, 0.8 mm pitch

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