

Triconex MP3101

Main Processor Module

Manufacturer	Triconex
Model / order number	MP3101
Product identification	Main Processor Module
System / family context	Trident Systems

Verified scope

Base model 3101: MPC860 32-bit, 50 MHz application and I/O processors; 16 MB application DRAM; 8 KB retentive NVRAM. Specifications and capacity statements are from the Version 1.2 guide.

Engineering checks before replacement

- Record the installed Trident release before applying version-specific limits.
- Keep the three MP channels and their baseplate identity traceable.
- Preserve application backups and retentive-variable requirements.
- Check TriStation and Modbus connections on the MP baseplate.

Original manufacturer source reference

Trident Version 1.2 Planning and Installation Guide, 9720070-003, 2001. Original PDF pages 46, 47, 48, 49, 50.

Open manufacturer document (hosted copy)

This cover is an independent Sales PLC reference, not a manufacturer-issued datasheet. The following manufacturer pages retain their original text, layout and page numbering.

Request model verification or a quotation

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Main Processor Module

The following Main Processor components are available.

Model	Description
3101	MP Module (up to 14 I/O modules)
2101	MP Baseplate

A minimum Trident system has one MP Baseplate housing three MPs. Each MP Module serves as one channel of a Trident system. An MP Module consists of processors that execute the following firmware:

- Application processor and system executive (SX)
- I/O processor and input/output executive (IOX)

System Executive

The system executive performs the following functions:

- Control application execution
- TriBus communication and voting
- System diagnostics
- TriStation and Modbus slave communication

Input/Output Executive

The input/output executive performs the following functions:

- I/O module ASIC communication
- I/O control
- I/O diagnostics

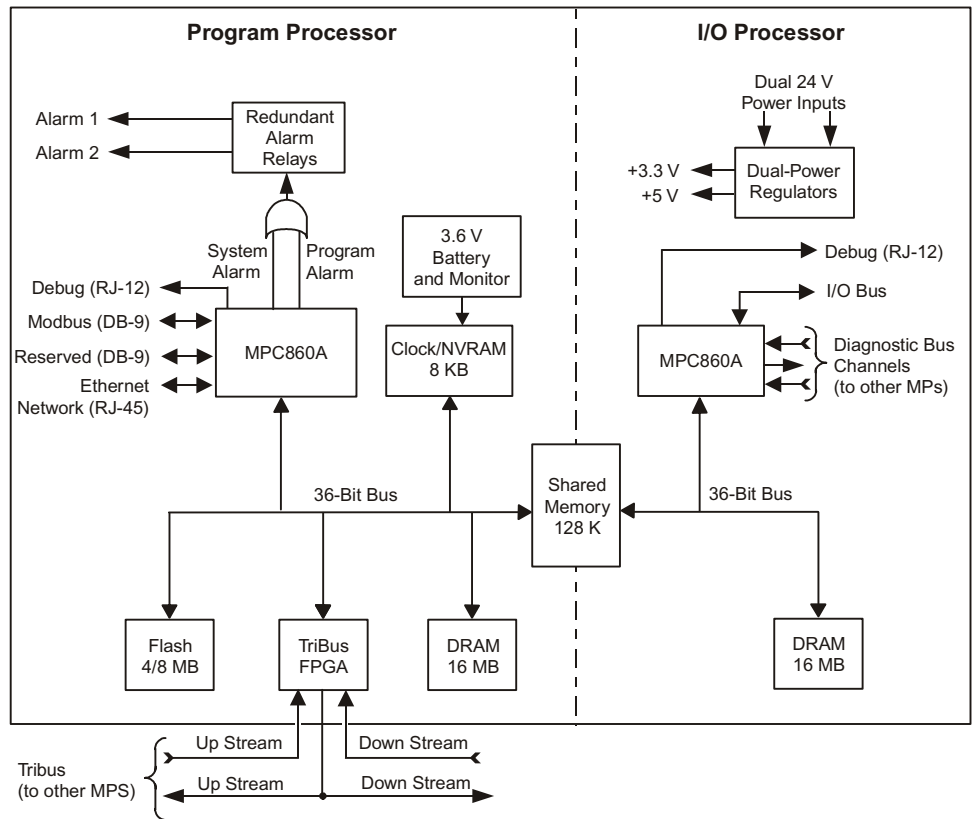
Operation

The three MPs communicate with each other using an inter-processor bus called TriBus. TriBus is a high-speed, fault-tolerant communication path between the MPs that is used primarily for voting and diagnostics. The three MPs communicate with I/O modules over a TMR HDLC I/O bus that operates at 2 megabits per second.

Each MP contains one TriStation 10BaseT Ethernet port and one Modbus RS-232/485 serial port.

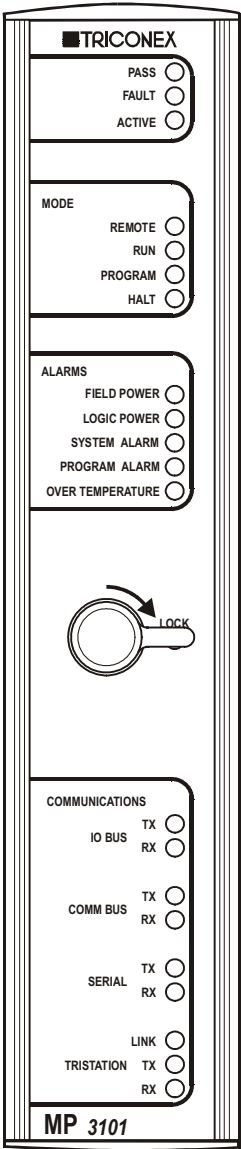
Each MP also contains redundant system alarm contacts. Connectors for the Ethernet ports, Modbus ports, and alarm contacts are located on the MP Baseplate. The MP Baseplate provides redundant, fused logic power connectors for the MP and I/O modules, which are directly connected to the I/O column.

MP Operation



Models 3101 Main Processor Module

MP Module
Front Panel



Main Processor Module Specifications

Application Processor

Feature	Specification
SX Processor	Motorola MPC860, 32-bit, 50 MHz
Flash PROM	6 MB used for SX, IOX, and control application storage CRC-protected
DRAM	16 MB used for SX control application execution and program and SOE data Byte parity
NVRAM	8 KB, used for retentive variables CRC-protected
Clock calendar	
Accuracy during power on	1 sec/day typical 2.2 sec/day maximum
Accuracy during power off, with battery backed up	2.2 sec/day typical 9.2 sec/day maximum
Battery	½ AA lithium, 15-year predicted life
TriBus	25 Mbps CRC-protected 32-bit + parity DMA
TriStation port	1 10BaseT Ethernet connector RJ-45 shielded connector on baseplate
Modbus port	1 RS-232/485 DTE DB-9-pin shielded connector on baseplate
Debug port	Used to access diagnostic information RJ-12 connector located on baseplate, shared with IOX debug port
Communication bus	RS-485 2 Mbps HDLC
Alarm contacts	Redundant, normally closed

Input/Output Processor

Feature	Specification
IOX Processor	Motorola MPC860, 32-bit, 50 MHz
DRAM	16 MB, used for IOX execution Byte parity
Shared memory	128 KB, used to communicate with SX Byte parity
Diagnostic bus	2 Mbps HDLC, used to communicate I/O module diagnostic information between MP channels
Debug port	Used to access diagnostic information RJ-12 connector located on baseplate, shared with SX debug port
I/O bus	RS-485 2 Mbps HDLC