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Understanding Embedded - Microcontroller, Microprocessor, FPGA Modules

Embedded - Microcontroller, Microprocessor, and FPGA Modules are fundamental components in modern electronic systems, offering a wide range of functionalities and capabilities. Microcontrollers are compact integrated circuits designed to execute specific control tasks within an embedded system. They typically include a processor, memory, and input/output peripherals on a single chip. Microprocessors, on the other hand, are more powerful processing units used in complex computing tasks, often requiring external memory and peripherals. FPGAs (Field Programmable Gate Arrays) are highly flexible devices that can be configured by the user to perform specific logic functions, making them invaluable in applications requiring customization and adaptability.

Applications of Embedded - Microcontroller,

Details	
Product Status	Not For New Designs
Module/Board Type	MPU Core
Core Processor	DSTni-EX
Co-Processor	XPort Direct+
Speed	25MHz
Flash Size	512KB
RAM Size	256KB
Connector Type	RJ45
Size / Dimension	1.25" x 1.7" (31.8mm x 43.3mm)
Operating Temperature	-40°C ~ 85°C
Purchase URL	https://www.e-xfl.com/product-detail/maestro-wireless/xpd1001000-01

LANTRONIX®

DeviceLinx™

XPort Direct+ Embedded Device Server

- Powerful and affordable networking for any device with a serial interface on its microcontroller
- Integrated module with RJ45 and dedicated networking SoC
- Web server, TCP/IP protocol stack and Windows deployment software
- Up to 921 Kbps data rate
- Compact low profile (<12 mm)
- 2 x 12 pin, 2 mm headers
- Three GPIO pins
- RS-232/RS-485 ready

RoHS WEEE COMPLIANT

Ethernet Connectivity and Powerful Web Server in a Deployment-Ready Module

The compact XPort® Direct+™ is an embedded device server module delivering high-performance Ethernet connectivity and web server capabilities.

Manufacturers of high-volume, price-sensitive products can now rapidly and even more affordably web-enable virtually any device with a serial interface on its microcontroller. With this capability, OEMs can offer remote access and control over the Internet as a standard feature in their products.

Economical Platform for High-Volume Deployments

This ready-to-use solution is built on the same time-tested and market-proven technology offered in the successful XPort. With its low cost and powerful functionality, XPort Direct+ is ideal for high-volume product deployments where low-cost, limited functionality host microcontrollers traditionally create a barrier to network-enablement.

- Building automation (lighting, etc.)
- Consumer electronics
- Energy/metering applications
- Home automation (high-end audio, alarm panels, etc.)
- Point of sale (POS) products
- RFID readers
- Sensors and controllers
- Vending machines
- White/durable goods

Integrated Network Communications Module

XPort Direct+ acts as a dedicated co-processor module to optimize network activities, permitting the device's host microcontroller to function at maximum efficiency. Serial data from the device microcontroller's CMOS logic-level serial port is packetized and delivered over an Ethernet network via TCP or UDP data packets. Similarly, incoming TCP or UDP packets are unbundled and presented to the attached device over its microcontroller's serial interface.

XPort Direct+ features a built-in web server for communications with a device via a standard Internet browser. Web capability can be used for remote configuration, real-time monitoring, upgrades and troubleshooting. XPort has 512 KB of on module Flash for web pages and firmware upgrades.

This fully-integrated and ready-to-deploy module also includes a 10/100 MAC/PHY, 256 KB of SRAM and an RJ45 jack with magnetics. Easy to embed, this device server module enables engineers to focus on their core competency while reducing development time and cost and increasing product value.

Feature-Rich Software, Easy Configuration and Deployment

Eliminating the need to negotiate the intricacies of Transmission Control Protocol (TCP) or Internet Protocol (IP), XPort Direct+ incorporates:

- Robust embedded operating system
- Full-featured network protocol stack
- Proven, parameter configurable, ready-to-use serial-to-Ethernet application
- Built-in web server for device communication and configuration via a standard browser
- 256-bit AES encryption

The Windows-based DeviceInstaller™ makes configuring one or more XPort Direct+ modules in a subnet quick and easy.

- Install and configure XPort and load firmware
- Assign IP & other network specific addresses
- Set wireless parameters
- Load custom web pages and view specific device data
- Enable web-based configuration of the device
- Ping or query the attached device(s) over the network
- Allow Telnet communication with the device(s)

Features

Serial Interface
- **Interface:** CMOS (Asynchronous, 5V Tolerant)
- **Data Rates:** 300 bps to 921,600 bps
- **Characters:** 7 or 8 data bits
- **Parity:** odd, even, none
- **Stop Bits:** 1 or 2
- **Control Signals:** DTR/DCD, CTS, RTS
- **Flow Control:** XON/XOFF, RTS/CTS
- **Programmable I/O:** 3 PIO pins (software selectable)

Network Interface
- **Interface:** Ethernet 10Base-T or 100Base-TX (Auto-Sensing)
- **Connector:** RJ45
- **Protocols:** TCP/IP, UDP/IP, ARP, ICMP, SNMP, TFTP, Telnet, DHCP, BOOTP, HTTP, and AutoIP

Indicators (LED)
- 10Base-T connection
- 100Base-TX connection
- Link & activity indicator - Full/half duplex

Management
- SNMP, Telnet, serial, internal web server, and Microsoft Windows®-based utility for configuration

Security
- Password protection
- 256-bit AES Rijndael encryption

Internal Web Server
- **Storage Capacity:** 384KB for web pages

Hardware and Firmware
- **CPU:** Based on the DSTni-EX enhanced 16-bit, 48MHz or 88MHz, x86 architecture
- **Memory:** 256KB SRAM and 512KB Flash
- **Power Input Voltage:** 3.3 VDC, 200mA Typical (240mA max)
- **Firmware:** Upgradeable via TFTP and serially

Environmental
- **Operating Temp:** -40° to 85°C (-40° to 185°F)
- **Storage (Non-operating):** -40° to 85°C (-40° to 185°F)

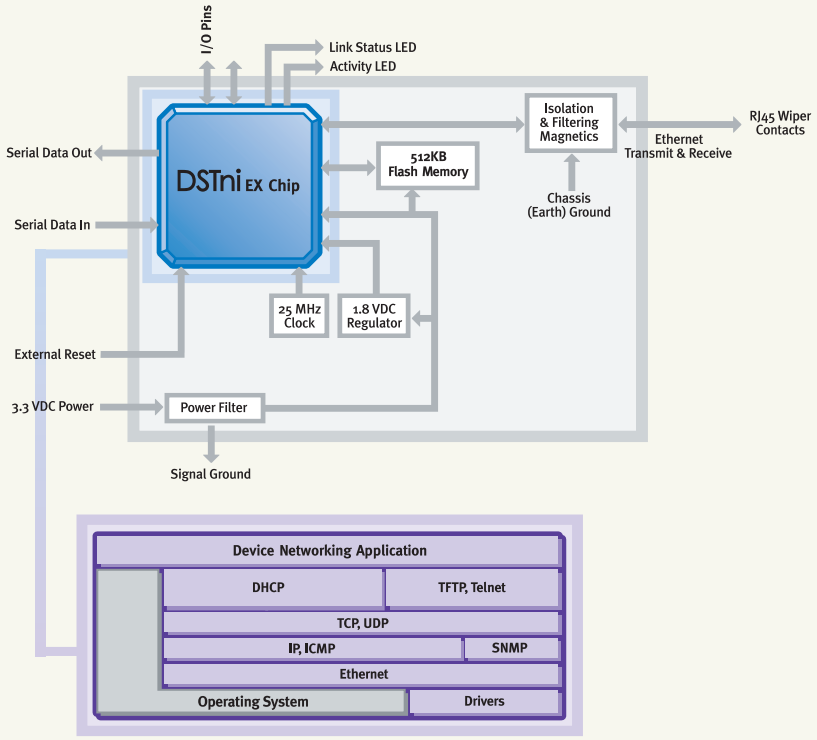
Packaging
- **Dimensions:** 43.3 x 31.75 x 11.76 mm (.702 x 1.25 x .463 in)
- **Weight:** 9.6 g (0.34 oz)

Warranty
- 2-year limited warranty

Patents
- 4,972,470 and others

Included Software
- Web manager, Windows® 98/ME/NT/2000/XP/Vista-based DeviceInstaller™ configuration software,
- Com Port Redirector™ software and related utilities

XPort Direct+ Block Diagram



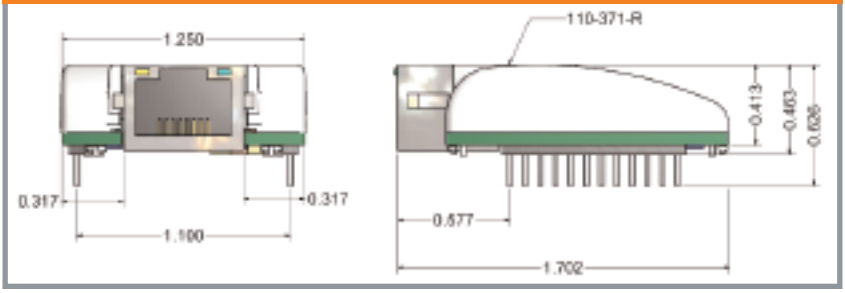
Internal Software Portfolio

XPort Direct+ is also offered without an RJ45 connector. The XPort Direct+ NC (no connector) is a lower-priced option enabling you to place the connector anywhere on the board, based on your design requirements.

Ordering Information

Part Number	Description
XPD1001000-01	XPort Direct+ Device Networking Module, Bulk, RoHS
XPD100100K-01	XPort Direct+ Device Networking Module, Kit
XPD100100S-01	XPort Direct+ Device Networking Module, Sample, RoHS
XPDNC2000-01	XPort Direct+ w/o RJ45 connector, RoHS

Dimensions



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