

Xeta4 Debian

400 MHz Ethernet

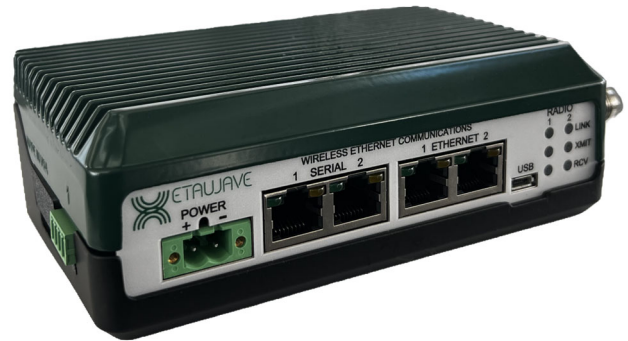
Software Defined Industrial Radio

The **Xeta4 Debian** Ethernet radio is an extremely capable and flexible industrial software defined radio covering the 403 to 470 MHz frequency band (model dependent). The Xeta4 is based on the XetaWave patented **Dual Decode Digital Architecture™** that offers significant receiver performance.

The Xeta4 supports multiple modulation schemes and features that selectively switch to achieve optimal data throughput given the available channel size and environmental noise.

MultiSpeed MultiPoint™ mode enables Endpoints operating at different over-the-air data rates to communicate with a single Access Point. The **Enhanced MultiPoint, XetaEMP**, mode provides an increase in throughput and decrease in latency over our standard modes and against competitive products.

All Xeta4 radios from the uTasker, Linux, XetaEdge, and Debian series are over-the-air compatible and the Xeta4 Debian also supports **compatibility with MDS 4710/4790** and **SD4** master and repeater radios.



Key Features

High Speed Over-the-air data transfer rates from 5 to 216 kbps plus higher throughput with payload compression and **XetaEMP**.

Selective Modulation Multiple MSK, PSK, and QAM modulations.

Dual Mode Duplex and single channel operations.

Network Types Point to Point, Point to MultiPoint, CSMA peer to peer, Enhanced MultiPoint (**XetaEMP**).

Adjustable RF Output 10 mW to 10 Watts (+10 to +40 dBm) RF output.

Secure Over-the-air data encryption using 128-bit and 256-bit AES.

MultiSpeed Multipoint Access Points communicate with Endpoints operating at different RF Data Rates.

XetaEMP Enhanced MultiPoint protocol with increased throughput and decreased latency.

Xeta4 Debian Specifications

| Transmitter | FCC | IC/FCC | ETSI/RED |
|---------------------|---------------------------------------|-----------------------------|-----------------|
| Frequency Range | 450 to 470 MHz | 406 to 430 & 450 to 470 MHz | 406 to 470 MHz |
| Output Power | 10 to 8000/10000 mW (10 to 39/40 dBm) | | |
| Modulation | MSK, QSPK, 8PSK, 16QAM, 32QAM, 64QAM | | |
| Data Rate | 5 to 216 kbps | | 5 to 61 kbps |
| Channel Bandwidth | 6.25, 12.5, 25 & 50 kHz | | 6.25 & 12.5 kHz |
| Frequency Stability | 1.0 ppm | | |
| Range | 70+ miles | | |

Receive sensitivity numbers below are with FEC disabled. With FEC enabled, these typically improve by 3 dBm.

| Receiver | 6.25 kHz Channel | | 12.5 kHz Channel | | 25 kHz Channel | |
|----------|------------------|-----------|------------------|-----------|----------------|-----------|
| | Sensitivity | Data Rate | Sensitivity | Data Rate | Sensitivity | Data Rate |
| MSK | -112 dBm | 5 kbps | -115 dBm | 10 kbps | -114 dBm | 18 kbps |
| QPSK | | | -104 dBm | 20 kbps | -107 dBm | 29 kbps |
| 8PSK | | | -100 dBm | 31 kbps | -101 dBm | 44 kbps |
| 16QAM | | | -95 dBm | 41 kbps | -98 dBm | 59 kbps |
| 32QAM | | | -91 dBm | 51 kbps | -95 dBm | 76 kbps |
| 64 QAM | | | -90 dBm | 61 kbps | -89 dBm | 91 kbps |

| Receiver | 50 kHz Channel | |
|------------|----------------|-----------|
| Modulation | Sensitivity | Data Rate |
| MSK | | 43 kbps |
| QPSK | | 72 kbps |
| 8PSK | | 105 kbps |
| 16QAM | | 144 kbps |
| 32QAM | | 180 kbps |
| 64 QAM | | 216 kbps |

Xeta4 Debian Specifications

Processing

| | |
|-------------|---------------|
| CPU | ARM Cortex-A8 |
| OS | Debian |
| RAM / Flash | 256 MB / 4 GB |

Interfaces

| | |
|-----------------|--|
| Power Connector | 2-pin Phoenix / +12 to +32 Vdc |
| Ethernet | 2 x RJ45 / 10/100 Mbps Base-T |
| Serial | 2 x RJ45 / up to 1Mbps / RS232/422/485 |
| Micro USB | On-the-Go; +5 Vdc @ 500 mA |
| RF Connector | TNC / 50 Ohms |
| Standard I/O | 1 x MMS input/output & 2 x DI |

Power

| | |
|----------|------------------|
| Transmit | 945 mA @ +12 Vdc |
| Receive | 300 mA @ +12 Vdc |
| Idle | 176 mA @ +12 Vdc |

Environmental/Physical

| | |
|--------------------|----------------------------|
| Op. Temperature | -40°C to +75°C |
| Humidity | 95% @ +40°C non-condensing |
| Safety | UL Class 1 Div 2 |
| Dimensions (LxWxH) | 6.62" x 3.45" x 1.83" |
| Weight | 700 grams |

Functionality

| | |
|---------------------|---|
| Operating Modes | Point to Point, Point to MultiPoint, Enhanced MultiPoint, Peer to Peer |
| Roles | Access Point, Endpoint, Repeater |
| Compatibility Modes | As an Endpoint compatible with MDS 4710/4790 and SD4 |
| Networking | Static IP Routing, Net Filtering, Port Forwarding, Network Address Translation, Modbus Bridging |
| Protocols | IEEE 802.3, TCP, UDP, ARP, DHCP, NTP, FTP, ICMP, HTTP, HTTPS, SSH, Telnet, Multicast SNMP |
| Management | Web GUI, SNMP v1, v2, & v3 |
| VLANs | 802.1q VLANs and Trunks, QoS |
| Quality of Service | Four Levels of VLAN QoS |
| Serial Services | TCP/UDP Terminal Server, TCP Terminal Client, Modbus RTU Server |
| Error Handling | CRC, FEC, Retransmit on error |
| Error Correction | Golay, Reed-Solomon |
| Data Encryption | 128 & 256-bit AES Payload Data Encryption |
| RF Encryption | 128-bit AES RF Overhead Encryption |
| Compression | Low, High, Decompress Only |
| Repeater | Store-and-forward |
| MultiMaster Sync | Synchronization of Collocated Access Points or Multiple Access Points within a Network |
| MultiSpeed | Up to 4 Data Rates within the same Channel Bandwidth |
| Diagnostics | Neighbor List, RF Ping, RF Throughput, RF Statistics, IP Ping, Traceroute, IPERF, TCP Dump, DNS Lookup, Serial Statistics, Modbus Bridging Statistics |
| Programmable I/O | Option for 8 programmable input/output signals (4 independently programmed analog inputs, analog outputs, or digital inputs and 4 independently programmed digital inputs or digital outputs) |
| Dual Radio | Option for dual radio with the same or different frequency bands |

Xeta4 Debian Specifications

Ordering

IC/FCC 406-430 & 450-470 MHz

| | |
|--------------------|---|
| XETA4-22MMDFB | Metal Enclosed, 2 Ethernet & 2 Serial |
| XETA4-22MMDFB-IO | Metal Enclosed, 2 Ethernet & 2 Serial with 8 Programmable I/O |
| XETA4X4-22MMDFB | Metal Enclosed, Dual Radio, 2 Ethernet & 2 Serial |
| XETA4X4-22MMDFB-IO | Metal Enclosed, Dual Radio, 2 Ethernet & 2 Serial with 8 Programmable I/O |

ETSI/RED 406-430 & 450-470 MHz

| | |
|------------------|---|
| XETA4-22MMDEB | Metal Enclosed, 2 Ethernet & 2 Serial |
| XETA4-22MMDEB-IO | Metal Enclosed, 2 Ethernet & 2 Serial with 8 Programmable I/O |

FCC 450-470 MHz

| | |
|----------------------|---|
| XETA4B-22MMDFB | Metal Enclosed, 2 Ethernet & 2 Serial |
| XETA4B-22MMDFB-IO | Metal Enclosed, 2 Ethernet & 2 Serial, with 8 Programmable I/O |
| XETA4BX4B-22MMDFB | Metal Enclosed, Dual Radio, 2 Ethernet & 2 Serial |
| XETA4BX4B-22MMDFB-IO | Metal Enclosed, Dual Radio, 2 Ethernet & 2 Serial with 8 Programmable I/O |

Mixed Band Dual Radios

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|--------------------|---|
| XETA9X4-22DMDFC | 902-928 MHz & 406-430/450-470 MHz Dual Radio, Metal Enclosed, 2 Ethernet & 2 Serial |
| XETA9X4-22DMDFC-IO | 902-928 MHz & 406-430/450-470 MHz Dual Radio, Metal Enclosed, 2 Ethernet & 2 Serial with 8 Programmable I/O |
| XETA9X4B-22DMDFC | 902-928 MHz & 450-470 MHz Dual Radio, Metal Enclosed, 2 Ethernet & 2 Serial |