

# Xeta7 Debian

## 700 MHz Ethernet Software Defined Industrial Radio

The **Xeta7 Debian** Ethernet radio is an extremely capable and flexible industrial software defined radio covering the 757 to 758 and 787 to 788 MHz frequency bands. The **Xeta7 Debian** Ethernet radio is offered with an option to include 8 programmable inputs and outputs. The **Xeta7** is based on the XetaWave patented **Dual Decode Digital Architecture™** that offers significant receiver performance.

The **Xeta7** supports multiple modulation schemes and features that can 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 transfer rates to communicate with a single Access Point over the same network. The **Enhanced MultiPoint (XetaEMP)** mode provides an increase in throughput and decreased in latency over our standard modes and against competitive products.



## Key Features

**High Speed** Over-the-air data transfer rates from 10 to 1008 kbps plus higher throughput with payload compression and in the **XetaEMP** mode.

**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 Point to MultiPoint protocol with increased throughput and decreased latency.

# Xeta7 Debian Specifications

## Transmitter

Frequency Range	757 to 758 & 787 to 788 MHz
Output Power	10 to 10000 mW (10 to 40 dBm)
Modulation	MSK, QSPK, 8PSK, 16QAM, 32QAM, 64QAM
Data Rate	10 to 1008 kbps
Channel Bandwidth	12.5, 25, 50, 100, 200 & 250 kHz
Frequency Stability	1.0 ppm
Range	70+ miles

## Receiver

Modulation	12.5 kHz Channel		25 kHz Channel		50 kHz Channel	
	Sensitivity	Data Rate	Sensitivity	Data Rate	Sensitivity	Data Rate
MSK	-113 dBm	10 kbps	-113 dBm	19 kbps	-110 dBm	39 kbps
QPSK	-109 dBm	23 kbps	-107 dBm	36 kbps	-105 dBm	71 kbps
8PSK	-104 dBm	34 kbps	-102 dBm	52 kbps	-99 dBm	101 kbps
16QAM	-100 dBm	45 kbps	-98 dBm	70 kbps	-93 dBm	137 kbps
32QAM	-94 dBm	57 kbps	-93 dBm	87 kbps	-89 dBm	175 kbps
64QAM		68 kbps		105 kbps		210 kbps

## Receiver

Modulation	100 kHz Channel		200 kHz Channel		250 kHz Channel	
	Sensitivity	Data Rate	Sensitivity	Data Rate	Sensitivity	Data Rate
MSK	-108 dBm	76 kbps	-105 dBm	153 kbps	-104 dBm	194 kbps
QPSK	-103 dBm	160 kbps	-102 dBm	320 kbps	-101 dBm	403 kbps
8PSK	-97 dBm	240 kbps	-94 dBm	480 kbps	-95 dBm	605 kbps
16QAM	-91 dBm	320 kbps	-91 dBm	640 kbps	-91 dBm	806 kbps
32QAM	-87 dBm	400 kbps	-87 dBm	800 kbps	-87 dBm	1008 kbps
64QAM		480 kbps		960 kbps		1209 kbps

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## Processing

CPU	300 MHz 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

## Power

Transmit	593 mA @ +12 Vdc (3W)
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, Full Duplex
Roles	Access Point, Endpoint, Repeater
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	Decompress Only, Low, High
Repeater	Store-and-forward
MultiMaster	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 that has the same or different frequency band

# Xeta7 Debian Specifications

## Ordering

XETA7-22MMDFB	Metal Enclosed, 2 Ethernet & 2 Serial
XETA7-22MMDFB-IO	Metal Enclosed, 2 Ethernet & 2 Serial with 8 Programmable I/O
XETA7X7-22MMDFB	Metal Enclosed, Dual Radio, 2 Ethernet & 2 Serial
XETA7X7-22MMDFB-IO	Metal Enclosed, Dual Radio, 2 Ethernet & 2 Serial with 8 Programmable I/O