

Xeta7 Debian

700 MHz MAS Ethernet

Software Defined Industrial Radio

The **Xeta7** Debian Ethernet radio is an extremely capable and flexible industrial software defined radio (SDR) supporting the licensed 757 to 758 and 787 to 788 MHz frequency band. Based on the Debian operating system, the **Xeta7** Debian radios are XetaWave's latest generation of radios.

The **Xeta7** utilizes a XetaWave patented **Dual Decode Digital Architecture™** which offers significant receiver performance. The radio supports multiple modulation schemes and features. The **MultiSpeed** mode allows Endpoints operating at different RF data rates to communicate with a single Access Point to achieve optimal data throughput given the available channel size and RF environment. The **Enhanced Multipoint (EMP)** mode provides an increase in throughput and a decrease in latency over traditional modes and against competitive products.



All **Xeta7** radios from the XetaWave Linux and Debian families are over-the-air compatible and the **Xeta7x7** Debian radio also supports full duplex operation.

Key Features

High Speed Over-the-air data rates from 10 kbps to 1209 kbps plus higher throughput with payload compression and **EMP**.

Dual Mode Duplex and single channel operation.

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

Network Types Point to Point, Point to Multipoint, Enhanced MultiPoint, and Peer to Peer.

Selective Modulation Multiple MSK, PSK, and QAM modulations.

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

MultiSpeed Endpoints communicate at different RF data rates with Access Point.

Diagnostics monitoring of TX and RX statistics (noise, RSSI, more), voltage, and temperature over SNMP and Modbus.

Xeta7 Debian Specifications

Transmitter	FCC
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

Receive sensitivity numbers are with FEC disabled. When enabled, sensitivity improves by 3 dBm.

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

Xeta7 Debian Specifications

Processing

CPU	ARM Cortex-A8 @ 300 MHz
OS	Debian
RAM Flash	256 MB 4 GB

Interfaces

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

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, Up to 5 Simultaneous Connections
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 (MMS)	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, Network Statistics, Serial Statistics, Modbus Bridging Statistics, Statistics Graphing and CSV downloading
Programmable I/O Option	8 programmable input/output signals (4 independently programmed analog inputs/outputs or digital inputs and 4 independently programmed digital inputs/outputs)
Dual Radio Option	Dual radio with the same or different frequency bands

Power

Transmit	593 mA (3W) @ +12 Vdc
Receive	300 mA @ +12 Vdc
Idle	176 mA @ +12 Vdc

Environmental/Physical

Op. Temp.	-40°C to +60°C
Humidity	95% @ +40°C non-condensing
Safety	UL Class 1 Div 2
Dimensions	6.62" x 3.45" x 1.83"
Weight	700 grams

Xeta7 Debian Specifications

Ordering

XETA7-22MMDFB	Metal Enclosed, 2 Ethernet & 2 Serial, 2 DIs, 1 MMS, MAS
XETA7-22MMDFB-IO	Metal Enclosed, 2 Ethernet & 2 Serial with 8 Programmable I/O, 1 MMS, MAS
XETA7X7-22MMDFB	Metal Enclosed, Dual Radio, 2 Ethernet & 2 Serial, 2 DIs, 1 MMS, MAS
XETA7X7-22MMDFB-IO	Metal Enclosed, Dual Radio, 2 Ethernet & 2 Serial with 8 Programmable I/O, 1 MMS, MAS