Xeta2 Debian

200 MHz Ethernet
Software Defined Industrial Radio

The **Xeta2 Debian** Ethernet radio is an extremely capable and flexible industrial software defined radio covering the 217 to 220 MHz frequency band. The **Xeta2 Debian** Ethernet radio is offered with an option to include 8 programmable inputs and outputs. The **Xeta2** is based on the XetaWave patented **Dual Decode Digital Architecture™** that offers significant receiver performance.

The **Xeta2** 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 decrease in latency over our standard modes and against competitive products.

Key Features

High Speed Over-the-air data transfer rates from 9 to 960 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 5 Watts (+10 to +37 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 An enhanced Point to MultiPoint protocol with increased throughput and decreased latency.

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Xeta2 Debian Specifications

Transmitter	Part 90	Part 90 Subpart T	Part 80
Frequency Range	217 to 220 MHz	220 to 222 MHz	217 to 218 & 219 to 220 MHz
Output Power	10 to 5000 mW (10 to 37 dBm)		
Modulation	MSK, QSPK, 8PSK, 16QAM, 32QAM, 64QAM		
Data Rate	10 to 216 kbps	9 to 480 kbps	153 to 960 kbps
Channel Bandwidth	12.5, 25 & 50 kHz	15, 50 & 100 kHz	200 & 250 kHz
Frequency Stability	1.0 ppm		
Range	70+ miles		

Part 90

Receiver	12.5 kHz Channel		25 kHz Channel		50 kHz Channel	
Modulation	Sensitivity	Data Rate	Sensitivity	Data Rate	Sensitivity	Data Rate
MSK	-115 dBm	10 kbps	-114 dBm	18 kbps	-109 dBm	43 kbps
QPSK	-113 dBm	17 kbps	-112 dBm	29 kbps	-106 dBm	72 kbps
8PSK	-107 dBm	26 kbps	-106 dBm	44 kbps	-103 dBm	105 kbps
16QAM	-104 dBm	36 kbps	-103 dBm	59 kbps	-100 dBm	144 kbps
32QAM	-102 dBm	45 kbps	-100 dBm	76 kbps	-97 dBm	180 kbps
64QAM	-92 dBm	54 kbps	-89 dBm	91 kbps	-85 dBm	216 kbps

Part 90 Subpart T

Receiver	15 kHz Channel		50 kHz Channel		100 kHz Channel	
Modulation	Sensitivity	Data Rate	Sensitivity	Data Rate	Sensitivity	Data Rate
MSK	-115 dBm	9 kbps	-105 dBm	36 kbps	-105 dBm	76 kbps
QPSK	-110 dBm	19 kbps	-101 dBm	59 kbps	-99 dBm	160 kbps
8PSK	-95 dBm	28 kbps	-95 dBm	88 kbps	-93 dBm	240 kbps
16QAM	-90 dBm	37 kbps	-88 dBm	117 kbps	-89 dBm	320 kbps
32QAM	-88 dBm	47 kbps	-85 dBm	146 kbps	-86 dBm	400 kbps
64 QAM	-84 dBm	56 kbps	-78 dBm	176 kbps	-80 dBm	480 kbps

Part 80

Receiver	200 kHz Channel		250 kHz Channel	
Modulation	Sensitivity	Data Rate	Sensitivity	Data Rate
MSK	-102 dBm	153kbps	-102 dBm	194 kbps
QPSK	-100 dBm	320 kbps		
8PSK	-89 dBm	480 kbps		
16QAM	-88 dBm	640 kbps		
32QAM	-86 dBm	800 kbps		
64 QAM	-76 dBm	960 kbps		

Xeta2 Debian Specifications

Processing

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

Power

Transmit	460 mA (2W) & 620 mA (5W) @ +12 Vdc
Receive	300 mA @ +12 Vdc
Idle	176 mA @ +12 Vdc

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

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
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 programed digital inputs or digital outputs)
Dual Radio	Option for dual radio that has the same or different frequency band

Xeta2 Debian Specifications

Ordering	
XETA2-22MMDFB	Metal Enclosed, 2 Ethernet & 2 Serial
XETA2-22MMDFB-IO	Metal Enclosed, 2 Ethernet & 2 Serial with 8 Programmable I/O
XETA2X2-22MMDFB	Metal Enclosed, Dual Radio, 2 Ethernet & 2 Serial
XETA2X2-22MMDFB-IO	Metal Enclosed, Dual Radio, 2 Ethernet & 2 Serial with 8 Programmable I/O

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