VANET®

iVANET's VA Router_VTI-be6200

- VANET Inc. has developed its own Wi-Fi routers by integrating its proprietary protocol (iStack) into a thin layer of the TCP/IP stack.
- VANET's proprietary protocols enable the routers to form a Wi-Fi-based WAN with mobility and provide congestion control to ensure wired internet quality.
- **VTI-be6200** is equipped with Wi-Fi 7 as the most advanced Wi-Fi standard and is designed for enterprise, school, building networks, and high-end home users.

Product Overview (VTI-be6200)

Key features & Benefits

Extreme High performance

Supports 4K-QAM to achieve maximum date rates of 0.7Gbps in 2.4GHz band, 2.9Gbps in 5GHz band, and 5.8Gbps in 6GHz band (aggregate peak rate of 9.3Gbps)

Increasing the efficiency

Supports concurrent triple-radio 802.11be along with 16-user DL / UL-OFDMA, Multi-user MIMO(MU-MIMO) and Multiple RUs.

Connecting more devices simultaneously

Improved device performance by increasing number of simultaneous device connections with built-in 2 spatial streams per radio (2.4GHz, 5GHz & 6GHz). Supports concurrent associated client devices 256@2.4GHz, 256@5GHz and 256@6GHz.

Multi-gigabit access speeds

Delivers Wi-Fi multi-gigabit throughput through onboard 10Gbps Ethernet.

Enhanced security

Supports the latest Wi-Fi security standard with WPA3 and receive enhanced protection from man-in-the-middle attacks in the most secure way.

Product Overview

The VANET VTI-be6200 is a middle-end triple-band, triple-concurrent Wi-Fi 7 AP that supports 2 spatial streams in each radio, i.e., 6GHz, 5GHz and 2.4GHz bands, channel bandwidths up to 320MHz in 6GHz, 160MHz in 5GHz (40MHz in 2.4GHz), and up to 4096-QAM modulation. The VANET VTI-be6200 is designed to deliver high performance access for mobile and IoT devices in environments where device density is high.

With OFDMA and MU-MIMO capabilities, the VANET VTI-be6200 efficiently manages up to 768 client connections (256 clients per band) with increased capacity and improved coverage and performance in ultra-high dense environments such as healthcare facilities, universities, conference centers, arenas, and stadiums. Furthermore, multi-gigabit Ethernet ensures bottleneck-less backhaul even at full use of available Wi-Fi capacity.

The VANET VTI-be6200 supports features of IEEE802.11be standard in order to simultaneously serve multiple clients and prioritize different types of traffic, which increases the data rates for both individual applications, devices and the overall network.

The VANET VTI-be6200 supports Wi-Fi Enhanced OpenTM which provides confidentiality for over-the-air communications with OWE (Opportunistic Wireless Encryption) & SAE (Simultaneous Authentication of Equals) in open networks such as coffee shops and restaurants, as well as airports, hotels and sports arenas.

Feature

General

- Support 3 radios (2.4GHz, 5GHz and 6GHz)
- 2x2 MU-MIMO implements for high-performance
- 2 spatial streams
- Max link rate 688Mbps @ 2.4GHz radio
- Max link rate 2882Mbps @ 5GHz radio
- Max link rate 5764Mbps @ 6GHz radio

Radio Resource Management

- Dynamic Channel Control/Selection
- Automatic transmit power and channel control
- Self-healing with coverage hole detection
- Band steering with multiple steering modes
- Load balancing of clients
- Airtime fairness
- Adaptive Noise Immunity
- Analyzing RF Spectrum
- Easy Mesh support
- Performance protection in congested RF environments
- Mitigates co-channel interference with coordinated access
- Mitigates adjacent channel interference with optimized receiver sensitivity
- Efficient reuse of channels at shorter intervals
- Mitigates non 802.11 interference without dedicated radios

Service and Networking

- L2 fast roaming
  - Opportunistic Key Caching
  - PMK Key Caching
- Bridging or NAT for LAN/Wireless
- DHCP Server/Client
- VLAN assignment per SSID
  - Optionally, by filter-id of external RADIUS server
- Q-in-Q tagging

Management and Configuration

- Multiple user interface options :
  - Built-in web-based management
  - Command line interface (CLI)
- Remote firmware upgrade and configuration

Feature (continues)

QoS

- Wireless Multimedia Extensions (WME, subnet of IEEE 802.11e)
- U-APSD/WMM Power Save
- Prioritizes voice over data for both tagged and untagged traffic
- Rule and role based QoS processing
- QoS policy and Rate Limitation per group, station
  - o DSCP
  - o 802.1P
  - o 802.1P/WMM

Security, Authentication and Encryption

- Stateful inspection firewall
  - TCP/UDP flooding
  - SYN flooding
  - ARP flooding
  - IP Spoofing
  - IP Sweeping
  - Port Scanning
  - Session Limit by source or destination
- AP access control from remote device
- ACL policy with IP address, port of source and destination
- WPA / WPA2 / WPA3 personal & enterprise
- IEEE 802.11i / WPA2 with passphrase (WPA2-Personal)
- IEEE 802.1X (WPA2-Enterprise) and hardware-accelerated AES
- EAP Types
  - EAP-TLS
  - EAP-TTLS/MSCHAPv2
  - PEAPv0/EAP-MSCHAPv2
  - PEAPv1/EAP-GTC
  - EAP-SIM
  - EAP-AKA/EAP-AKA Prime
  - EAP-FAST
- TKIP/AES
- High availability for authentication
  - When disconnecting with controller, AP try to authenticate RADIUS server directly for wireless stations

Regulatory & Certifications

- KC certified (TBD)
- CE Marked (TBD)
- Wi-Fi Alliance-certified 802.11a/b/g/n/ac/ax/be (TBD)

General Specifications

Physical Characteristics	
Physical Size	192.2 mm x 163.4 mm x 37 mm
Weight	Kg (TBD)
LED	RGB LED x2

Power	
Power	IEEE 802.11at PoE PD
Consumption	30W (Max)

Interfaces	
WAN port	10G x1
LAN port	2.5G x1
Console port	RJ-45 x1

Environmental Conditions	
Operating temperature	0°C~+40°C
Storage temperature	-30°C~+70°C
Operating Humidity	10%~90% (non-Condensing)
Storage Humidity	5%~90% (non-Condensing)

Radio Specifications

Wireless Modulation	
802.11a	• BPSK, QPSK, 16QAM, 64QAM with OFDM
802.11b	• Direct-sequence spread-spectrum (DSSS)
802.11g	• DSSS and Orthogonal frequency-division multiplexing (OFDM)
802.11n	• BPSK, QPSK, 16QAM, 64QAM, 256QAM with OFDM
	• High-throughput (HT) support: HT 20/40
	• Packet aggregation: A-MPDU, A-MSDU
	• Advanced Features: LDPC, STBC and TxBF
802.11ac	• BPSK, QPSK, 16QAM, 64QAM, 256QAM with OFDM
	• Packet aggregation: A-MPDU, A-MSDU
	• Very High-Throughput: VHT20/40/80/160
	• Advanced Features: LDPC, STBC, Maximum Likelihood (ML) Detection
802.11ax	• BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM with OFDM
	• UL/DL MU-MIMO
	• OFDMA (Orthogonal frequency-division multiple access)
802.11be	• BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM with OFDM
	• UL/DL MU-MIMO
	• OFDMA (Orthogonal frequency-division multiple access)

Radio Specifications (continues)

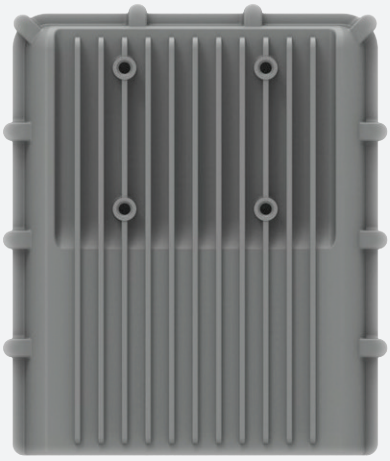
Output Power per chain		
802.11n	20MHz	MAX 23dBm±1.5dBm@MCS0/8
	40MHz	MAX 23dBm±1.5dBm@MCS0/8
802.11g	MAX 23dBm±1.5dBm@6Mbps	
	MAX 21.5dBm±1.5dBm@54Mbps	
802.11b	24dBm±1dBm	
802.11a	23dBm±1.5dBm	
802.11ac	VHT20	MAX 23dBm ±1.5dBm@MCS0~7
	VHT40	MAX 22dBm ±1.5dBm@MCS8
	VHT80	MAX 21dBm ±1.5dBm@MCS9
	VHT160	
802.11ax	HE20	MAX 23dBm ±1.5dBm@MCS0~7
	HE40	5GHz:
	HE80	MAX 22dBm ±1.5dBm@MCS8
	HE160	MAX 21dBm ±1.5dBm@MCS9
		MAX 20dBm ±1.5dBm@MCS10
		MAX 19dBm ±1.5dBm@MCS11
802.11be	EHT20	MAX 17dBm±1.5dBm@all rate
	EHT40	
	EHT80	
	EHT160	
	EHT320	

Receiver Sensitivity (PER 10%_one stream)		
802.11n	HT20	- 90dBm @ MCS0
		- 72dBm @ MCS7
	HT40	- 88dBm @ MCS0
		- 70dBm @ MCS7
802.11g	-90dBm @ 6M (BPSK, 1/2)	
	-73dBm @ 54M (QAM64)	
802.11b	-95dBm @ 1Mbps	
(PER 8%)	-86dBm @ 11Mbps	
802.11a	-91dBm @ 6M (BPSK, 1/2)	
	-74dBm @ 54M (QAM64)	
802.11ac	VHT20	-89dBm @MCS0,
		-71dBm @MCS7(64QAM)
		-66dBm@MCS8(256QAM)
	VHT40	-86dBm @MCS0
		-68dBm @MCS7
		-61dBm@MCS9(256QAM)
	VHT80	-83dBm @MCS0
		-65dBm @MCS7
		-58dBm@MCS9
	VHT160	-83dBm @MCS0
		-64dBm @MCS7
		-57dBm@MCS9

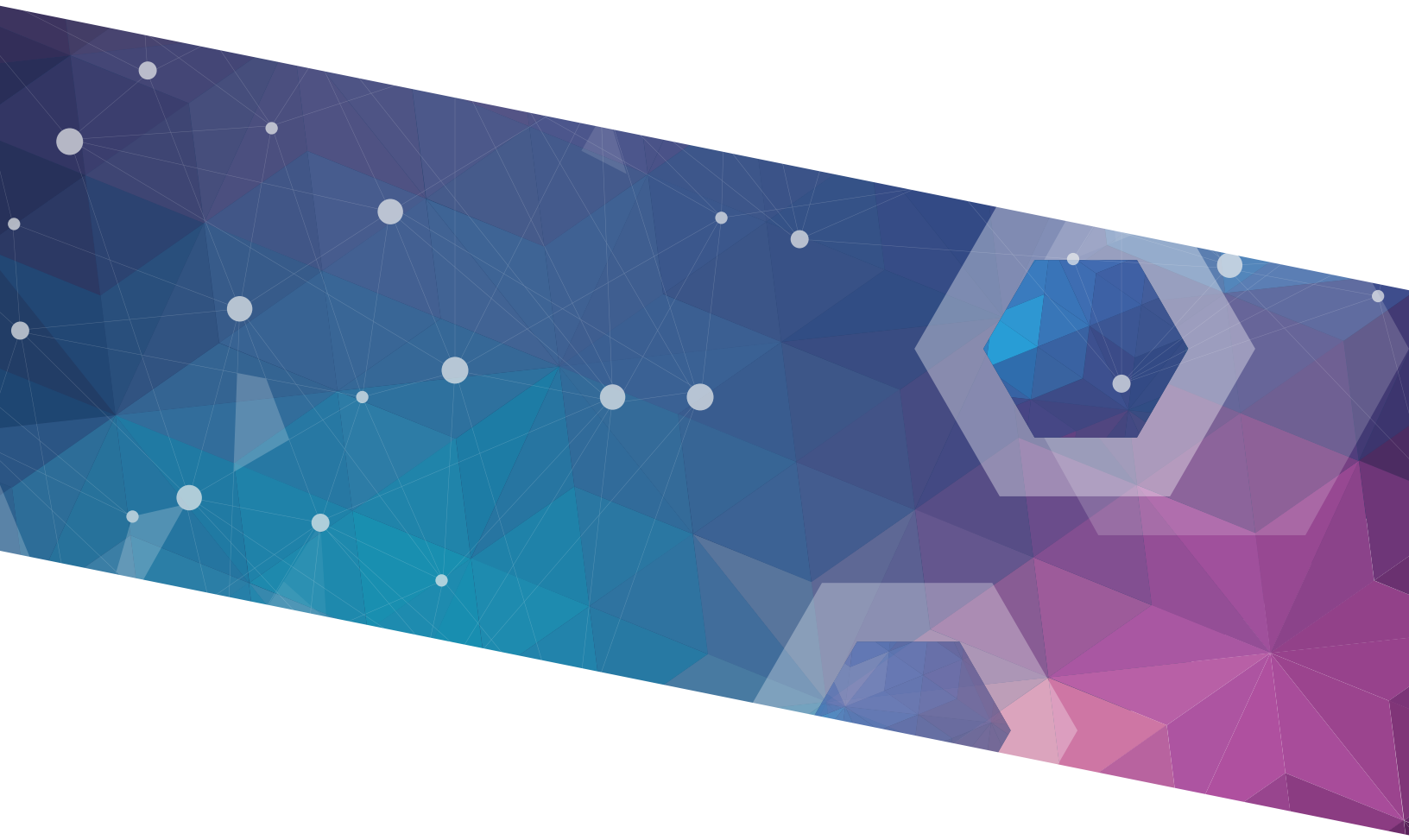
Receiver Sensitivity (PER 10%_one stream) *continues*		
802.11ax	HE20	-90dBm @MCS0
		-71dBm @MCS7
		-65dBm@MCS9
		-59dBm@MCS11
	HE40	-87dBm @MCS0
		-68dBm @MCS7
		-62dBm@MCS9
		-56dBm@MCS11
	HE80	-84dBm @MCS0
		-65dBm @MCS7
		-59dBm@MCS9
		-53dBm@MCS11
	HE160	-81dBm@MCS0
		-62dBm@MCS7
		-56dBm@MCS9
		-50dBm@MCS11
802.11be	EHT20	-92dBm @MCS0
		-73dBm @MCS7
		-67dBm @MCS9
		-56dBm @MCS13
	EHT40	-85dBm @MCS0
		-70dBm @MCS7
		-64dBm @MCS9
		-53dBm @MCS13
	EHT80	-85dBm @MCS0
		-69dBm @MCS7
		-64dBm @MCS9
		-53dBm @MCS13
	EHT160	-82dBm @MCS0
		-65dBm @MCS
		-59dBm @MCS9
		-50dBm @MCS13
	EHT320	-80dBm @MCS0
		-61dBm @MCS7
		-55dBm @MCS9
		-49dBm @MCS13

ID Concept (VTI-be6200)

Front View



Back View



CONTACT

VANET, Inc.
30021 Tomas
Suite 150
Rancho Santa Margarita CA 92688
U.S.A.
P +1 (949) 273-9909
info@vanetusa.com
www.vanetusa.com

VANET Inc. is one-of-a-kind wireless infrastructure and Application Company. Insisting on supreme technologies, VANET Inc. sets out to create the best Internet Solution Technologies to enable transparent and non-disruptive convergence for the next-generation-Internet.

VANET®

REV. 05/25