

SD-Edge Platform

xMEG Series



The xMEG Series is Benu Network's high performance hardware deployment option for the SD-Edge Platform, a comprehensive software that provides next-generation packet processing and subscriber management functions. xMEGs leverage the latest innovations in high-capacity, low-latency fast-path x86 processing, carrier-grade Linux, and provide an easy-to-deploy appliance-based system.

Benu Networks' Software Defined Edge (SD-Edge) Platform is a robust virtual platform that provides next-generation packet processing and subscriber management functions, empowering teams to have the performance, flexibility, and scale to rapidly provision services and scale up or down whenever necessary. Our highly programmable, fully virtualized Platform separates control plane and data plane functionality for increased service agility, optimal network performance, and reduced costs. Unmatched capacity and performance makes it easier than ever to meet and exceed consumer demand.

With virtual solutions for local gateways, wireless access gateways, broadband network gateways, and other service functions, the SD-Edge Platform is the only comprehensive platform to disaggregate a plethora of network components, all while remaining open and interoperable with other tools.

Benu's SD-Edge platform software has been optimized to provide a broad suite of subscriber services in a wide range of applications:

- Service Gateway (vSG)
- Wi-Fi Access Gateway (WAG)
- Trusted Wi-Fi Access Gateway (TWAG)
- Broadband Network Gateway (BNG)
- 5G Access Gateway Function (AGF)
- Other L2 and L3 Services

Key Highlights

Unified Solution

- Integrated software and hardware solution
- Streamlines the deployment of virtualized IP services and delivery of networking applications
- Versatile network gateway for fixed and mobile broadband service providers deploying next generation IP services to the edge and core of their networks

High Throughput

- 14 Gbps with xMEG-1
- 40 Gbps with xMEG-10
- 100 Gbps with xMEG-100
- 200 Gbps with xMEG-200

Elastic and Scalable

- Provides new scale and economics for Benu Networks' virtualized IP service and network applications
- Platform can scale to small distributed applications with the xMEG-1
- Large centralized applications with the xMEG-100 and xMEG-200

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PRODUCT	USE CASES
Wi-Fi Access Gateway (WAG)	<ul style="list-style-type: none"> • Public/Community Wi-Fi • Homespot networks • Smart Cities • Venue Wi-Fi • Hospitality Wi-Fi • Managed Wi-Fi for Multi-Dwelling Units (MDU)
Trusted Wi-Fi Access Gateway (tWAG)	<ul style="list-style-type: none"> • Mobile Data Offload • HotSpot 2.0 • International Wi-Fi Roaming • 3GPP Interworking
Broadband Network Gateway (BNG)	<ul style="list-style-type: none"> • Residential broadband services • Internet access for businesses
5G Access Gateway Function (AGF)	<ul style="list-style-type: none"> • Wireline and fixed wireless access with common 5G policy and enforcement • User plane function (UPF) offload enabling direct Internet access
Service Gateway	<ul style="list-style-type: none"> • Managed business networks that offer guest WiFi, static IP and wireless backup, advanced security, L2 & L3 Instant VPN • Service function chaining using Benu and 3rd party virtual network functions, including stateful FW, IDS/IPS, UTM, URL filtering, Malware & Phishing protection, and SD-WAN. • Universal CPE (uCPE) deployments for on-prem Service Gateways • Virtual CPE (vCPE) deployments enabling use of commodity, low-end CPE
Other L2 & L3 Network Service Functions	<ul style="list-style-type: none"> • Dual-Stack Lite (DS-Lite) Address Family Transition Router (AFTR) • B2B Static IP and IP VPN Router • Carrier-Grade NAT (CGN)

In all the above applications, the Benu SD-Edge software provides a full suite of subscriber services, such as authentication, authorization, accounting, and IP address management; granular policies per CPE, subscriber, device, application, or any combination thereof; intelligent quality of service and full mobility; stateful firewall and advanced security, and high-scale forwarding and routing. The SD-Edge software has extremely low latency and provides a comprehensive suite of networking capabilities. It also supports service function chaining via our SD-Edge service pipelines.

xMEG comes in four flexible hardware form factors with different interface, compute and storage configurations: xMEG-1, xMEG-10, xMEG-100, and xMEG-200. Benu's SD-Edge software is also available as a virtualized solution with our vMEG product, and can run on a variety of environments including Openstack, VMWare, KVM, or as a cloud-native container solution.



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xMEG MODEL NUMBERS

MODEL NUMBER	DESCRIPTION
980-1001-00	xMEG-10 4x10 SFP+, AC Power
980-1002-00	xMEG-10 4x10 SFP+, DC Power
980-1019-00	xMEG-100 8x10GE SFP+, AC Power
980-1020-00	xMEG-100 8x10GE SFP+, DC Power
980-1021-00	xMEG-100, 2x100GE QSFP28, AC Power
980-1022-00	xMEG-100, 2x100GE QSFP28, DC Power
980-1040-00	xMEG-200, 4x100GE QSFP28, AC Power
980-1041-00	xMEG-200, 4x100GE QSFP28, DC Power
921-0023	10GBASE-SR; SFP+ OPTICAL TRANSCEIVER
921-0024	10GBASE-LR; SFP+ OPTICAL TRANSCEIVER
921-0009	100GBASE-SR4; QSFP28
921-0016	100GBASE-LR4; QSFP28
980-0080-00	xMEG-1 6x1GE and 2x10GE SFP+, AC Power

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xMEG SPECIFICATIONS

SYSTEM SPECIFICATIONS	xMEG - 200	xMEG - 100	xMEG - 10	xMEG - 1
Network Interfaces	QSFP28 Fiber 4x100 GE • 100GBASE-SR4	SFP+ Fiber 8 x 10 GE • 10GBASE-SR • 10GBASE-LR OR QSFP28 Fiber 2 x 100 GE • 100GBASE-SR4 • 100GBASE-LR4	SFP+ Fiber 4 x 10GE • 10GBASE-SR • 10GBASE-LR	6 x 1GE SFP+ Fiber 2 x 10GE - 10GBASE-SR - 10GBASE-LR
Throughput	200 Gbps	100 Gbps	40 Gbps	14 Gbps
Operating System	BenuOS 5.0 (or greater)		BenuOS 5.0 (or greater)	BenuOS 7.6 (or greater)
Processor/Cores	Dual Intel® Xeon® Platinum 8180 Processors, 28 cores per CPU		Intel® Xeon® Gold 5118 Processor, 12 cores	Intel® Denverton 8 Core C3758
Memory Capacity	512GB Memory		128GB Memory	16GB Memory
Storage	Dual 480GB SSD, Raid 1		Dual 240GB SSD, Raid 1	M.2 240GB SSD
Management Interfaces	DB-9 RS-232 (DTE) Console DB-15 VGA USB 3.0/2.0 RJ-45 IPMI Dedicated LAN RJ-45 Ethernet Management 2 x 1GE and SFP+ Fiber 2x 10GE		DB-9 RS-232 (DTE) Console DB-15 VGA USB 3.0/2.0 RJ-45 IPMI Dedicated LAN RJ-45 Ethernet Management 4 x 1GE	Console on Micro-USB Port
Rack Units	2RU (19" Rack)		1RU (19" Rack)	1.5 RU, Dual Unit Tray (19" Rack)
Chassis Dimensions	H: 3.42 inches (86.8mm) W: 17.08 inches (434.0mm), 19 inches with the brackets D: 28.17 inches (715.5mm), 30 inches with the brackets		H: 1.68 inches (42.8 mm) W: 19 inches (482.6 mm) D: 37.5 inches (952.5 mm) Includes mounting ring for power supply	H: 2 inches (50.8 mm) W: 8.1 inches (205.74) D: 7.9 inches (200.66)
Shipping Dimensions	H: 12 inches (304.8mm) W: 26.25 inches (666.75mm) D: 38 inches (965.2)		H: 12 Inches (304.8mm) W: 25 inches (635mm) D: 41 inches (1041.4mm)	H: 4.3 inches (109.22) W: 19.4 inches (492.76) D: 11.3 inches (287.02 mm)
Weight	Maximum Chassis Weight: 58 lbs (26.31kg) Shipping Weight: 74 lbs (33.5 kg)		Maximum Chassis Weight: 48 lbs (21.78kg) Shipping Weight: 57 lbs (25.81 kg)	2.87 lb (1.30 Kg) to 3.11 lb (1.41 Kg), depending on SKU

SYSTEM POWER REQUIREMENTS			
AC POWER: DUAL, HOTPLUG, REDUNDANT (1+1)	xMEG - 100	xMEG - 10	xMEG - 1
AC Input Voltage	100 - 240V AC auto-range	100 - 240V AC auto-range	100 - 240V AC auto-range
Rated Input Current	12A – 6.7A max	10.0A – 5.0A max	2.0A - 1.0A max
Rated Input Frequency	50 to 60 Hz	50 to 60 Hz	50 to 60 Hz
Rated Output Power	1100W (max)	750W (max)	35W (typical), 45W (max)
Heat Dissipation Max	4100 BTU/hr.	2981 BTU/hr.	
Rated Output Voltages	+12.2V @ 91.6A, +12Vsb @ 3.0A	+12.2V @ 61.47A, +12Vsb @ 3A	

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DC POWER: DUAL, HOTPLUG, REDUNDANT (1+1)	xMEG-100	xMEG-10	xMEG-1
DC Input Voltage	-40VDC to -60VDC	-40VDC to -60VDC	Not Applicable
Max DC Current	32.0A	32.0A	
Rated Output Power	1100W	1100W	
Heat Dissipation Max	4416 BTU/hr.	4416 BTU/hr.	
Rated Output Voltages	+12.2V @ 91.6A, +12Vsb @ 3.0A	+12.2V @ 91.6A, +12Vsb @ 3.0A	
REGULATORY COMPLIANCE	xMEG-100	xMEG-10	xMEG-1
Electromagnetic Emissions	FCC Class A, EN 55022 Class A, EN 61000-3-2/-3-3, CISPR 22 Class A	FCC Class A, EN 55022 Class A, EN 61000-3-2/-3-3, CISPR 22 Class A	<ul style="list-style-type: none"> Australia/New Zealand: AS/NZS CISPR 32, Class A Canada: ICES-3/NMB-3, Class A Europe: EN 55024 (CISPR 24), Class A Japan: VCCI Class A USA: FCC CFR 47 Part 15, Subpart B, Class A
Electromagnetic Immunity	EN 55024/CISPR 24, (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11)	EN 55024/CISPR 24, (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11)	<ul style="list-style-type: none"> EN 300 386 EMC for Network Equipment EN 55024 EN 61000-3-2: Harmonic Current Emissions EN 61000-3-3: Voltage Fluctuations and Flicker EN 61000-4-2: ESD EN 61000-4-3: Radiated Immunity EN 61000-4-4: EFT EN 61000-4-5: Surge EN 61000-4-6: Low Frequency Conducted Immunity
Safety	CSA/EN/IEC/UL 60950-1 Compliant, UL or CSA Listed (USA and Canada), CE Marking (Europe)	CSA/EN/IEC/UL 60950-1 Compliant, UL or CSA Listed (USA and Canada), CE Marking (Europe)	<ul style="list-style-type: none"> UL/CSA 60950-1, Second Edition EN 60950-1, Second Edition IEC 60950-1, Second Edition Including all National Deviations and Group Differences IEC 62368-1
RoHS	RoHS 6 Compliant R	RoHS 6 Compliant	RoHS Compliant
ENVIRONMENTAL SPECIFICATIONS	xMEG-100	xMEG-10	xMEG-1
Operating Temperature	10°C to 35°C (50°F to 95°F)	10°C to 35°C (50°F to 95°F)	0°C to 40°C (32°F to 104°F)
Expanded Operating Temperature	5°C to 40°C (41°F to 104°F)	5°C to 40°C (41°F to 104°F)	
Non-Operating Temperature	-40°C to 65°C (-40°F to 149°F)	-40°C to 65°C (-40°F to 149°F)	-40°C to 70°C (-40°F to 158°F)
Operating Relative Humidity	8% to 90% (non-condensing)	8% to 90% (non-condensing)	5% to 85% (RH), non-condensing Continuously 5% to 90% (RH), non-condensing Short term (< 1% of operational hour per year)
Non-Operating Relative Humidity	5% to 95% (non-condensing)	5% to 95% (non-condensing)	5% to 90% (RH)