



1U Integrated Access VoIP Gateway

Model number: NC-MG232-X and NC-MG320-X, within X86 industrial computer module



NC-MG232-X

Main cards of above products:



X86 Industrial Computer Card



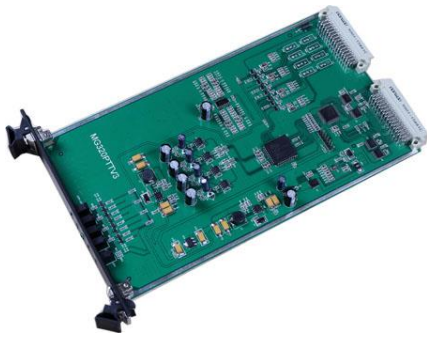
Analog User card with 16 ports fxs



MCU card of NC-MG320-X



Analog User card with 16 ports fxo

**PTT/Radio/Audio card****GSM/CDMA/WCDMA/4G LTE card****E&M/Magnet card****MIPS Card**

Overview:

What is a VoIP Gateway?

A VoIP gateway allows you to convert between a traditional telephony connection and a modern VoIP connection using SIP.

Conversions can go from SIP to traditional, traditional to SIP or even SIP to SIP for the purposes of failover or transcoding. In a traditional network to SIP deployment, a gateway significantly reduces operating costs by connecting a legacy business phone system with dynamic SIP trunking services. SIP to traditional network deployments use a gateway to connect a modern SIP communications system with digital or analog service from legacy carriers.

Niceuc Integrated Access VoIP Gateway 1U series is an All-in-one device which provides with all varieties of communication interface in one single unit like E1, FXO/FXS, GSM/CDMA/WCDMA/4G LTE, PTT/Radio/Audio, E&M/Magnet, SIP&SIP Subscribers, IMS interface, as well as built-in X86 industrial computer card and MIPS embedded card which are used for customer to install their own software like Asterisk or others. Maximal capacity are 4 ports E1/T1, 16 ports GSM/CDMA/WCDMA/4G LTE, 32 ports FXO/FXS, 120 SIP trunks and 500 SIP



Subscribers, 8 ports PTT/Radio/Audio, 16 ports E&M/Magnet. They are mainly used in IPCC, IP Dispatching, unify communications and some specific industries.

Signaling and Protocol:

- Signaling:

- SS7 (ITU-T Q.700 series), 24 bits/14 bits PC, ISUP/TUP;
- ISDN-PRI (ITU-T Q.931, Q.921);
- V5.2 (ITU-T G.964, G.965)
- R2/CAS
- Q.SIG
- DPNSS

- VoIP protocol:

- SIP
 - RFC3326 (Reason header in SIP messages)
 - RFC3372 (SIGTRAN and SIP-T)
 - RFC2327 (sdp)
 - RFC3398 (ISUP-SIP Mapping)
 - RFC3261 (sip)
 - RFC5806 (Diversion Indication in SIP)
 - RFC2833 (DTMF)
 - RFC3362 (t.38)
 - RFC 3261(SIP 2.0)
 - RFC3204 (MIME media types for ISUP and QSIG Objects)
 - RFC3578 (Mapping of ISUP overlap to SIP)
- Codec:G.711 U-Law and A-Law, G.711 Appendix 1, G.723.1 and G.723.1 Annex A, G.729 Annex A and Annex B, G.726, GSM, ARM, ILBC;
- Echo Cancellation: G.168 128 ms Network Echo Canceller;
- FAX: T30, T38 and pass through;
- Generic Voice Activity Detection (VAD);
- Generic Comfort Noise Generation (CNG);
- Calling control: Called/Calling party number translation; second stage dialing, Auto dialing with DTMF, Ring Back tone, DTMF, Caller ID, and Flexible input/output Gain Control.
- Network Protocol: IP, NAT, ICMP, ARP, HTTP, BOOTP, FTP, TFTP, DHCP, PPPOE, SNMP, Diff-Serv



Function and Features:

Carrier-Grade reliability

- With a new generation of processor, a separate high-end DSP processing chip and powerful hardware processing, ensure that the equipment at full load conditions remained stable and reliable;
- 99.99% availability, support continuous long talk at least 48 hours;
- Support over-current protection function on POTS interfaces ;
- Support the protection of lightning, surges, power lines and other protective lap;
- Full compatible;

Excellent voice communication quality

- Voice Activity Detection (VAD), to effectively save bandwidth resources;
- Comfort Noise Generation (CNG), to provide the same experience as PSTN in calls;
- Adaptive dynamic buffer technology, to meet the application under bad network;
- G.168 128ms echo cancellation technology. This indicator is far higher than the same kind of PBX, eliminating the echo interference caused by long distance call;
- DTMF detection / generation technology, to effectively support the business of the fax, callback, second dial.

Plentiful business functions

- Modification between calling number and called number;
- As a terminal, support the register trunk function to other GK(Gatekeeper) or SIP Server.
- As a gateway, support the control from superior GK or SIP Server to complete the trunking calls;
- Support any interacting among E1, GSM, PTT, FXO, FXS, SIP, IMS;
- Support automatic routing function;
- Support high capacity of black and white lists;
- Simultaneously support the register of 4 SIP Server;
- Support output of CDR;
- Fax support T.30, T38 and pass through;
- Support reelection function;
- Support detection of calling number and display of call ID;
- Support generation of dial tone, ring back tone, etc.;
- Port supports gain and comfort adjustment of noise;
- Multi-router and multi-bureau management, group, cluster and exchange management, intelligent routing distribution and equal traffic sharing;
- Support function of dividing groups, for the incoming calls, the subscriber line can be set to line up or take turns to choose;



- Flexibly control the incoming and outgoing of lines, the lock of long-distance calls can be controlled by the phone;

- Complete call functions, it can provide several kinds of call functions and special call way by customer's request;

- The voice processing capacity support voice play with built-in computer operator;

- High processing capacity in conference;

- Monitor and handle real-time telephone traffic;

Simple and convenient management/maintenance

- The way of management on software:

Local and remote WEB; Local and remote Telnet; Console port-Super terminal;

- On hardware, with rack design, they can be installed in the standard 19 inches rack, also can be separately installed in a small machinery room. (Both NC-MG232-X and NC-MG320-X are 1U height)

Specification of Each Card:

Name of Card	Specification	Description	NC-MG232-X	NC-MG320-X
PSU	One	DC -48V or AC 110-240V	Yes	Yes
MCU DSP 120 Card	4E1, 128 G.711channels, 64 G.729、G.723、G.726 channels, 32 T.38 Fax channels.	Signaling Protocol: SS7\PR\ R2\CAS\Q.SIG\V5.2\DNSS and SIP	N/A	Yes
MCU DSP 60 Card	2E1, 64 G.711 channels, 32 G.729、G.723、G.726 channels, 16 T.38 Fax channels.	Signaling Protocol: SS7\PR\ R2\CAS\Q.SIG\V5.2\DNSS and SIP	N/A	Yes
MCU DSP 30 card	32 G.711channels, 16 G.729、G.723、G.726 channels, 16 T.38 Fax channels.	SIP	Yes	N/A
MCU DSP 16 card	16 G.711channels, 8 G.729、G.723、G.726 channels, 8 T.38 Fax channels.	SIP	Yes	N/A
Analog User Card	16 ports FXO\FXS	Modular design, to connect PSTN CO line and analog phone /extension	Yes	Yes
Wireless Card	8 ports GSM\CDMA \WCDMA/4G LTE	Modular design, to connect PSTN wireless line from mobile operator	Yes	Yes
PTT Card	4 ports PTT/Radio	To connect different radio device, like Motorola, Tetra, Hytera, etc.	Yes	Yes
Audio Card	4 ports Audio	To connect speaker, microphone, broadcast system, mixer, etc.	Yes	Yes
E&M Card	8 ports E&M/Magnet	Modular design, to connect PBX with E&M interface or Magnet phone, used for railway and army	Yes	Yes
X86 Industrial Computer Card	2*GE, 1*USB, 1*HDMI, 1*VGA, 1*Line-out, Intel J1900 2.0GHz, 2/4/8GB CF, 32GB mSATA	Used for customers to install their own software like asterisk IP PBX, etc.	Yes	Yes
MIPs Embedded Card	4*GE, 2*USB, 1*COM, 1 to 4 cores - Up to 1.6GHz	Used for customers to develop their own business application	Yes	Yes



More information about X86 Industrial Computer Card:

It is an industrial mini-computer card that assembled inside of NC-MG232-X and NC-MG320-X, and for customer to install their own software.

Introduction:

- No-fan design, no noise, no dust, it is one high industrial-grade card that can be used in very bad industrial environment.
- Architecture is based on multi-core application processor of Intel Bay Trail, which is with super graphics processing ability and computing ability, so this is a card with lower power, high performance, and compact structure.
- Support single channel 1600/1333MHz DDR3L/1.35V memory, up to 8GB.
- Integrated with Intel HD Graphics card inside, and provide high performance display output; Support VGA\HDMI\LVDS display output, if use them at same time, there will be independent dual display.
- Two Realtek gigabit network card (an option: 1GE only), two Mini-PCIE slot.
- Support WIFI/SSD/3G module.

Specification:

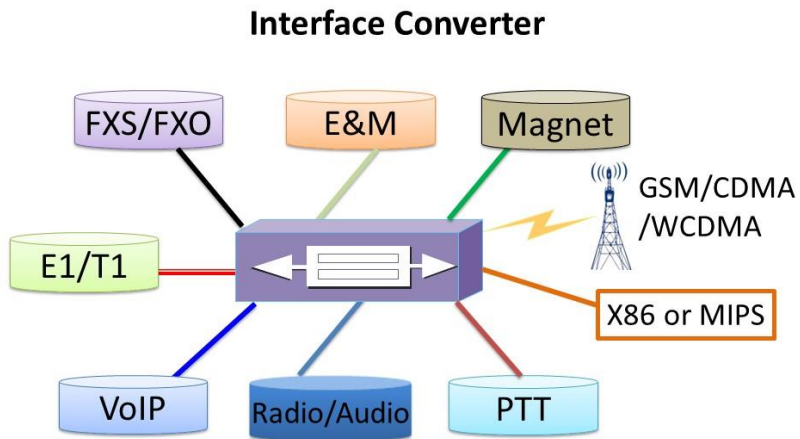
- Processor: Integrated Intel J1900 4-core, 2.0GHz; compatible with CPU Intel Bay Trail-I/M/S serial, flexible option for customers.
- Chipset: Intel Bay Trail SOC.
- Memory: Single channel 1600/1333MHz DDR3L/1.35V memory, up to 8GB.
- Display: Intel HD Graphics card; 1*VGA 2056*1536@60GHz, 1*HDMI 1920*1080@60GHz.
- Network: 2GE, support WoL, PXE.
- Audio: Integrated ALC662 6 channel high fidelity audio controller, support MIC, Line-out, power amplifier support 2Ω/5W speakers.
- Expandable Bus: 1* Mini-PCIE slot, supports WIFI and 3G module. 1*MSATA slot, support WIFI, SSD solid hard disk, SSD transmission speed 3Gbps.
- Storage: 1*SATA 2.0 HD port, transmission speed 3Gbps.
- Interface: 2*GE, 1*USB, 1*HDMI, 1*VGA, 1*Line-out.
- BIOS: 64Mb SMT Flash ROM.
- Watchdog: Support hardware reset function (level 256, 0~255 seconds).
- Power: DC 12V, get power from PSU of NC-MG232 and NC-MG320.
- Dimension: 120*120mm. • Temperature: -10°C~60°C. • Humidity:5~90%, non-condensing.

**Physical Specification:**

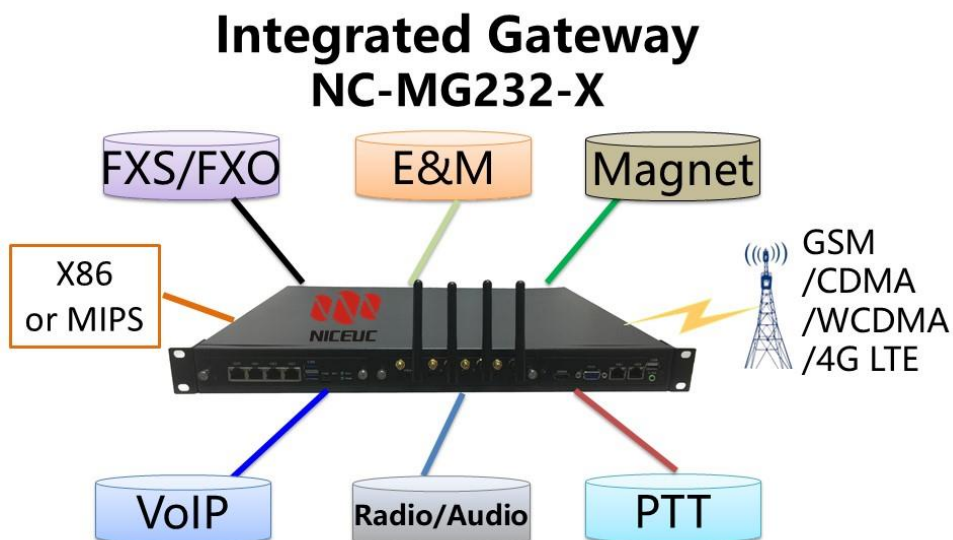
Item	NC-MG232-X	NC-MG320-X
Slot for PSU	No/Built-in	No/Built-in
Slot for MCU Card	No/Built-in	1
Slot for LPU Card	2	1
Analog Port (CO line/Extension)	0 to 32 FXO\FXS	0 to 32 FXO\FXS
VOIP Channel/SIP Trunk	16 or 32	32, 64 or 128
SIP Subscribers	30 to 200	30 to 500
E1/T1 port (PCM)	NA	0-4E1
Magnet Port	0-16	0-8
E&M Trunk Port	0-16	0-8
Audio Port	0-8	0-4
PTT/Radio Port	0-8	0-4
GSM/CDMA/WCDMA/4G LTE Port	0-16	0-8
X86 Industrial card	0-1	0-1
MIPS Embedded Card	0-1	0-1
Ethernet/LAN Port	1(10/100/1000M Base-T)	2 (10/100/1000M Base-T)
Console Port	1 (RS232)	1 (RS232)
SIP Compatibility	CISCO, Siemens, AVAYA, Huawei, ZTE, etc.	CISCO, Siemens, AVAYA, Huawei, ZTE, etc.
Radio Compatibility	Motorola, Hytera, Tetra, Gota, etc.	Motorola, Hytera, Tetra, Gota, etc.
Power Supply Unit	DC -48V or AC 110-240V	DC -48V or AC 110-240V
Power	40W	90W
Telephone Transmission Distance	<10KM	<10KM
Device Dimension	480mm*325mm*44mm (1U)	480mm*325mm*44mm(1U)
Weight	5KG	5.5KG
Working Environment	0°C~50°C, Less 80%	0°C~50°C, Less 80%

Application Topology:

1. All-in-one Device



2. Basic Application





Integrated Gateway NC-MG320-X

