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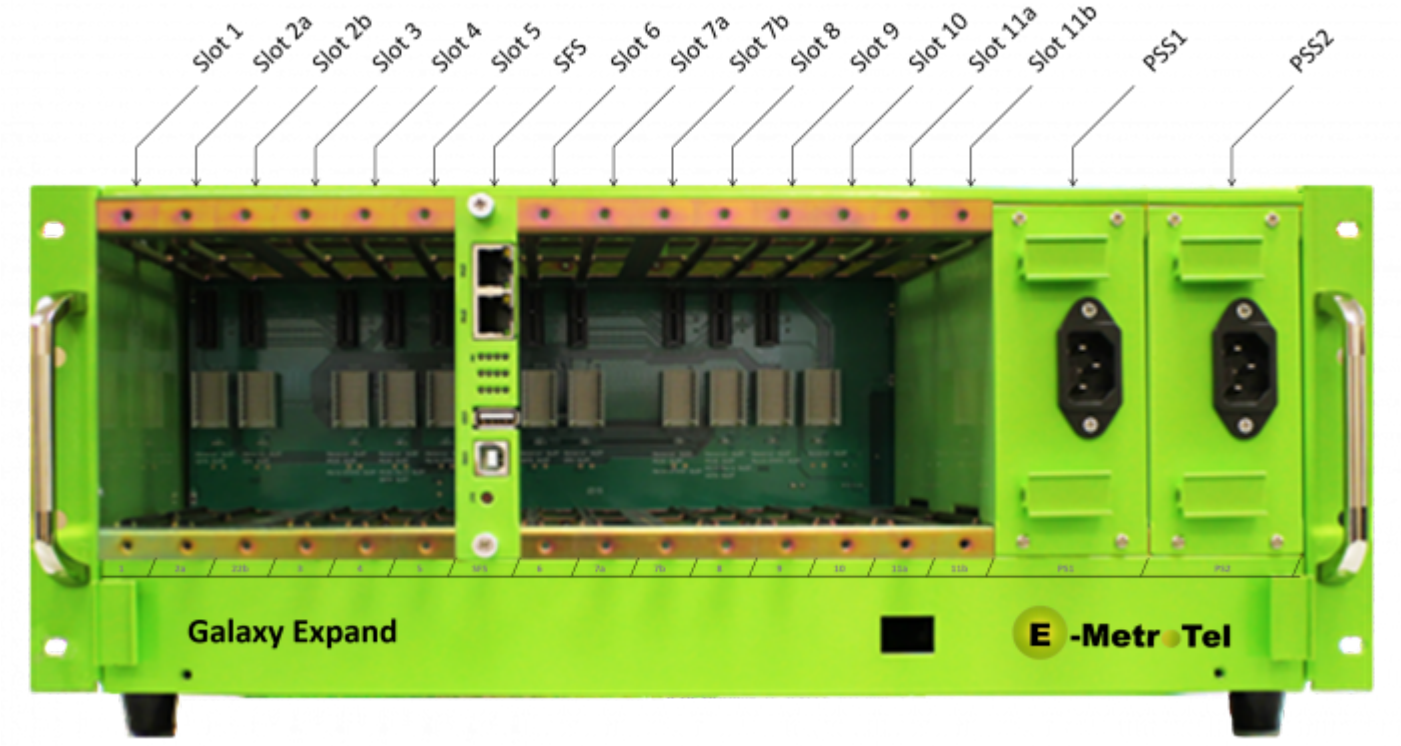
Galaxy Expand - Platform Overview and Hardware

The Galaxy Expand hardware platform is part of the E-MetroTel overall server portfolio. While it can function as a Call Server platform with a variety of Call Processor configuration options for standalone operation, it can also be configured in High Availability (HA) mode with an active/standby pair of call processors across two independent chassis units, as a Survivable Remote Gateway (SRG) system with a single processor, or even as a highly compact, large scale FXO, FXS, PRI, or Digital Station gateway with no Call Processors.

Galaxy Expand Chassis

The Galaxy Expand Is based on a multi-slot 19 inch wide x 7" high (4U) x 10.25" depth chassis. There are a total of 11 slots to support a variety of Server and/or telephony interface cards. In addition, there is a slot for the Switch Fabric card, which is used for in-chassis communication by all the other pluggable cards. All other cards, including server and telephony interfaces cards are optional.

The chassis and corresponding slot numbers is shown below:



The ordering code for the base chassis is as follows:

Ordering Code	Description
HBGLXC-XPND	11 Slot chassis equipped with: **Switch Fabric Card** **Galaxy Expand Power Supply** (Qty 2) **Fan Tray with Filters**

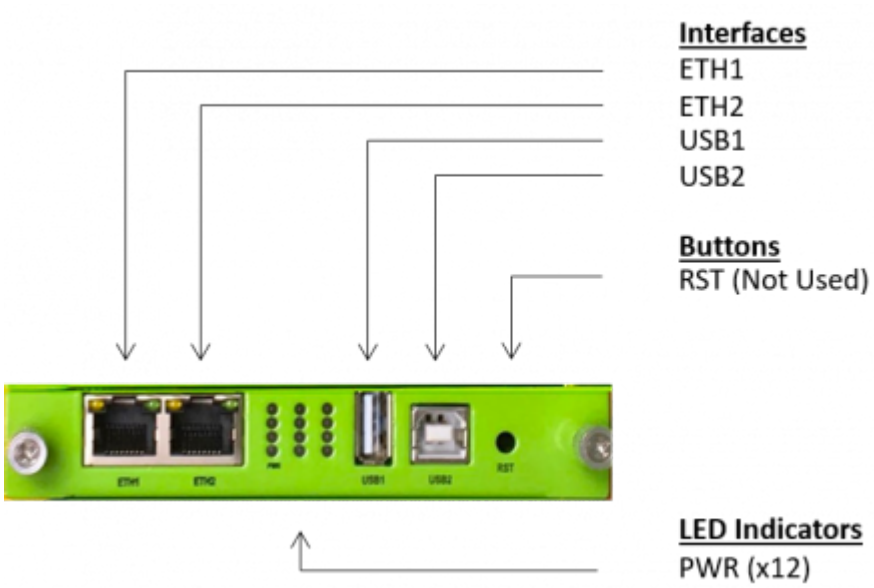
Standard Cards

The following cards are always included with the Galaxy Expand chassis. They are restricted to certain slots as noted below.

Switch Fabric Card

The Switch Fabric Card is required for all configurations and is always positioned in the slot labeled SFS (Switch Fabric Slot) as shown above.

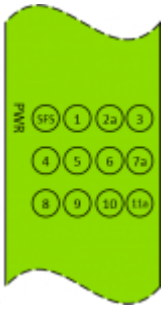
Front Panel



Interface	Description

Interface	Description
ETH1 (Backplane)	Interconnection to other Galaxy Expand chassis by extending the chassis backplane IP network **Default IP Address:** None (is an Ethernet switch port) **Type: RJ-45** *Note: When using recommended UCX IP addressing devices connected to this port will be on the:* . ***192.168.1.xxx*** *subnet with the 2930 Server Card* . ***192.168.11.xxx*** *subnet with the i5 Server Card*
ETH2 (Backplane)	Interconnection to other Galaxy Expand chassis by extending the chassis backplane IP network **Default IP Address:** None (is an Ethernet switch port) **Type: RJ-45** *Note: When using recommended UCX IP addressing devices connected to this port will be on the:* . ***192.168.1.xxx*** *subnet with the 2930 Server Card* . ***192.168.11.xxx*** *subnet with the i5 Server Card*
USB1	Interconnection to other Galaxy Expand chassis by extending the USB Bus. **Type:** USB 2.0 A
USB2	Interconnection to other Galaxy Expand chassis by extending the USB Bus. **Type:** USB 2.0 B
Buttons	**Description**
RST	Not Used
LEDs	**Description**

Interface	Description
PWR	Provides an indication of which cards slots are powered in the Galaxy Expand chassis, and whether the card is connected via Ethernet or USB The first LED above the PWR label shows the status of the Switch Fabric Card itself. The remaining indicators represent the pluggable card slot positions.



Note: *The position of the PWR label indicated above is as shown on actual SFS card.*

Color Indicator:

RED: Ethernet Connected Card Active

GREEN: USB Connected Card Active

Galaxy Expand Power Supply Cards

The Galaxy Expand chassis is always equipped with two redundant hot-swappable power supplies. Each power supply has its own power cable. E-MetroTel recommends connecting each of these power supply cables to 120V supplies on different breaker circuits to provide maximum protection against power interuption. These are always provided in the slots labeled PPS1 and PSS2.

Galaxy Expand Fan Tray

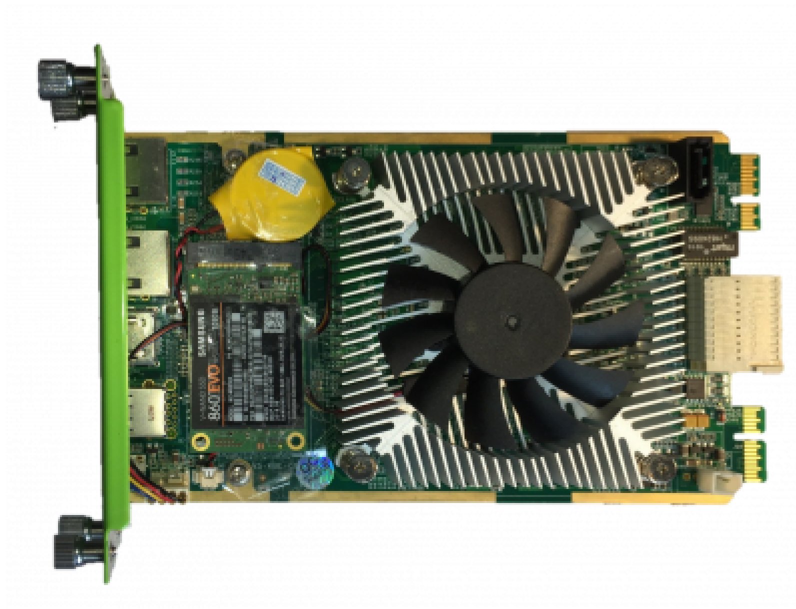
The Galaxy Expand chassis is equipped with a fan tray to provide maximum cooling capability when running under full load. The fan tray is located on the lower potion of the chassis where the E-MetroTel and Galaxy Expand branding is positioned.

Galaxy Expand Server Card Options

The Galaxy Expand hardware portfolio includes two different Server cards for call processing, and the chassis itself can support up to three Server cards simultaneously. Server cards can be seated in slots **2a**, **7a**, and/or **11a.**

Note that if **Dahdi-based** cards are to be used, then the CPU card **must** be configured in slot **7a**.

The Galaxy Server cards include:

Code	Description	
	i5 Server Card	
	2930 Server Card	

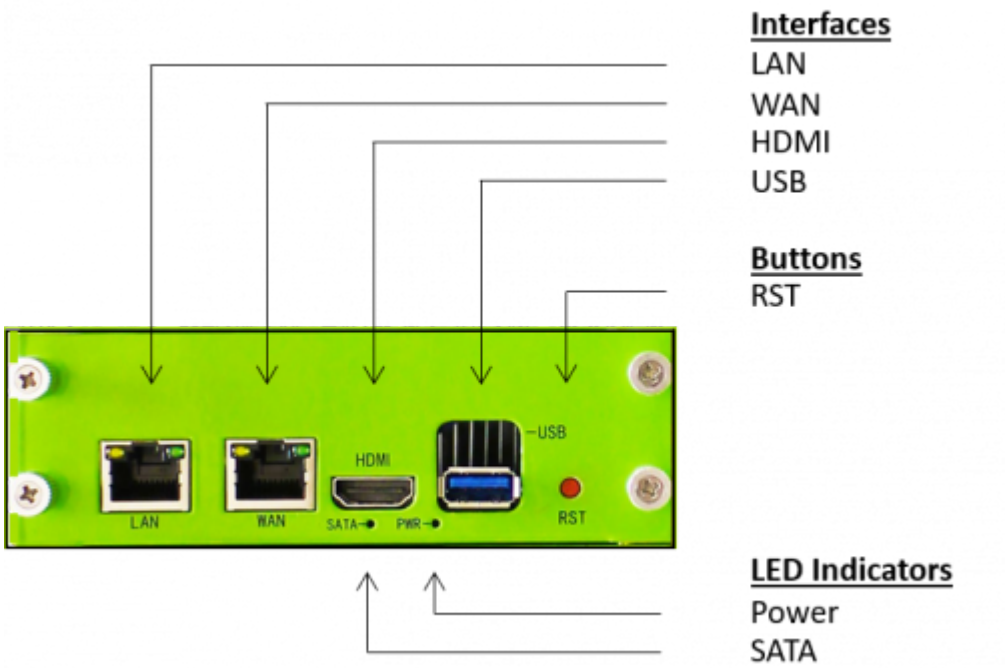
i5 Server Card

The Galaxy i5 Server Card is based on the Intel Core i5 processor with 4 Gb RAM and 500 Gb of storage, supporting:

- Registered extensions: 1000
- Concurrent calls: 500

The Galaxy i5 Server card is a double-width card and should be seated in slot 7a/7b of the Galaxy Expand Chassis.

Front Panel



Interface	Description
LAN	Interconnection to the customer telephony LAN **Default IP Address:** 192.168.10.200 (static, "ethernet1") **Type:** RJ-45
WAN	Interconnection to the customer or service provider WAN **Default IP Address:** 192.168.1.200 (static, "ethernet0") **Type:** RJ-45
HDMI	Provide access to the processor video feed for creating a headed system for troubleshooting.

Button	Description
RST	Reset the card and restart the UXc software.

LED Indicator	Description
Power	**Green:** Indicates the card has power
SATA	Indicates drive storage activity

2930 Server Card

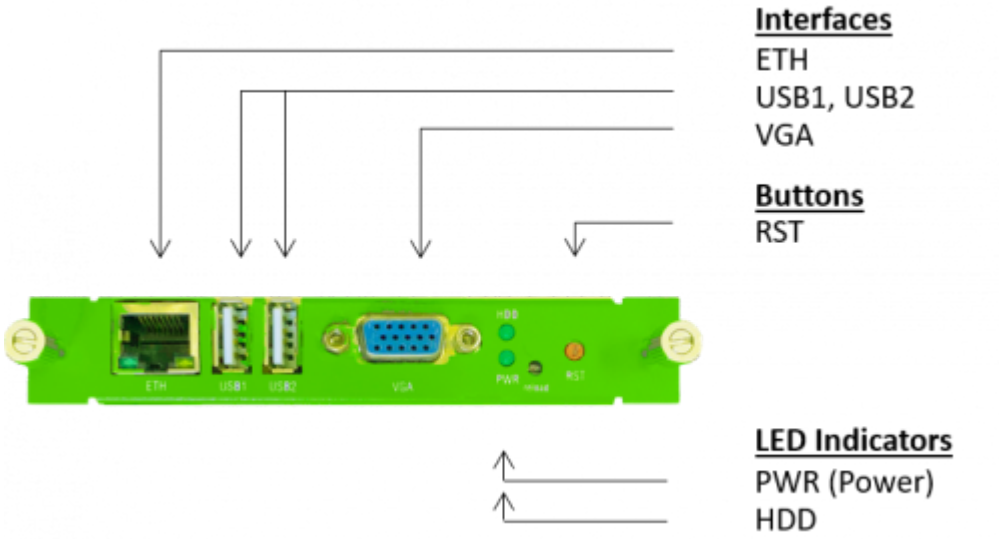
The Galaxy 2930 Server Card is based on the Intel Celeron 2930 processor with 2 Gb RAM and 32 Gb of storage, supporting:

- Registered extensions: 250

- Concurrent calls: 100

It is a single-width card that should be seated in slot 7a of the Galaxy Expand Chassis. When a Galaxy 2930 Server card is used the "7b" slot should be covered with a blank card slot cover.

Front Panel



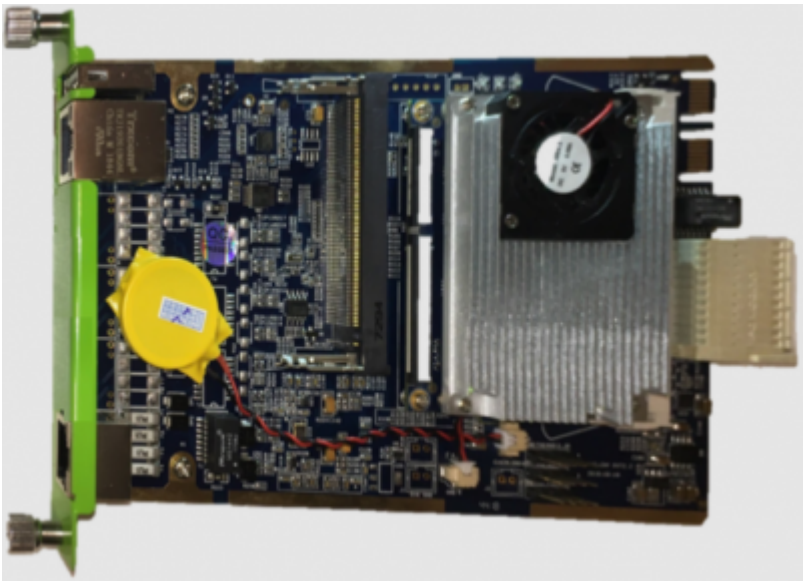
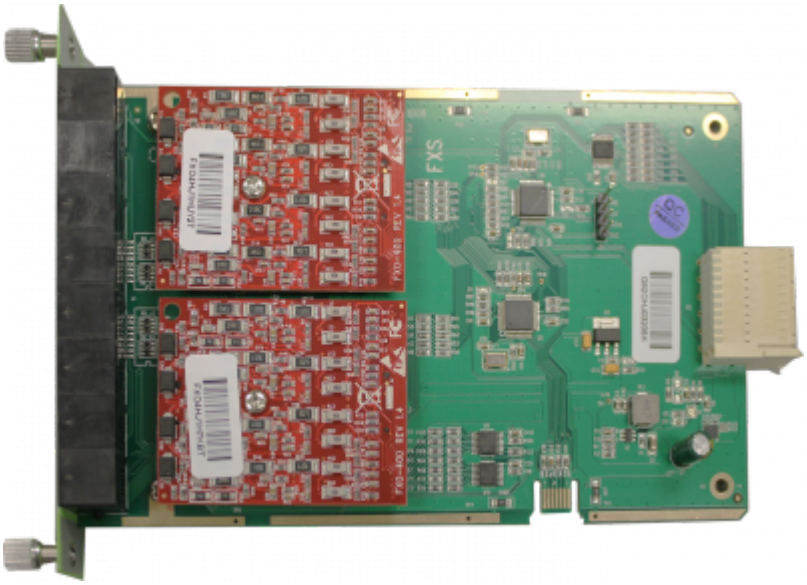
Interface	Description
ETH	Interconnection to the customer telephony LAN **Default IP Address:** 192.168.11.200 (static, "ethernet1") **Type:** RJ-45
USB1 *and* **USB2**	Interconnection to other Galaxy Systems, but typically not used in Galaxy Expand configurations **Type:** USB 2.0 A
VGA	Provide access to the processor video feed for creating a headed system for troubleshooting.

Button	Description
RST	Reset the card and restart the card software.

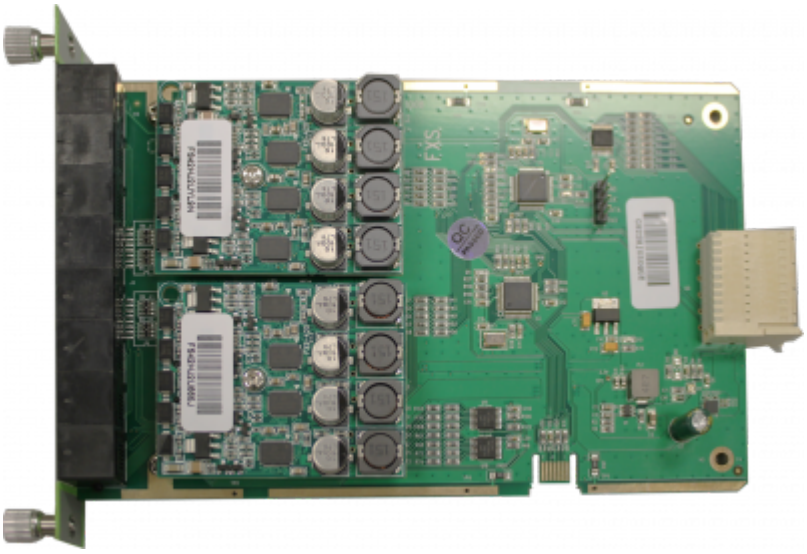
LED Indicator	Description
Power	Indicates the card has power
HDD	Indicates drive storage activity

Galaxy Expand Telephony Interface Options

The Galaxy Expand chassis can support up to a total of 11 telephony interface cards. These cards are used to connect to telephony interfaces such as a digital and analog telephones, PRI-1circuits, or analog lines (trunks). The available Telephony cards are as follows:

Code	Description
	
	DSM16p Card
	
	PRI-1 Card
	
	FXO 8-port Card

Code	Description



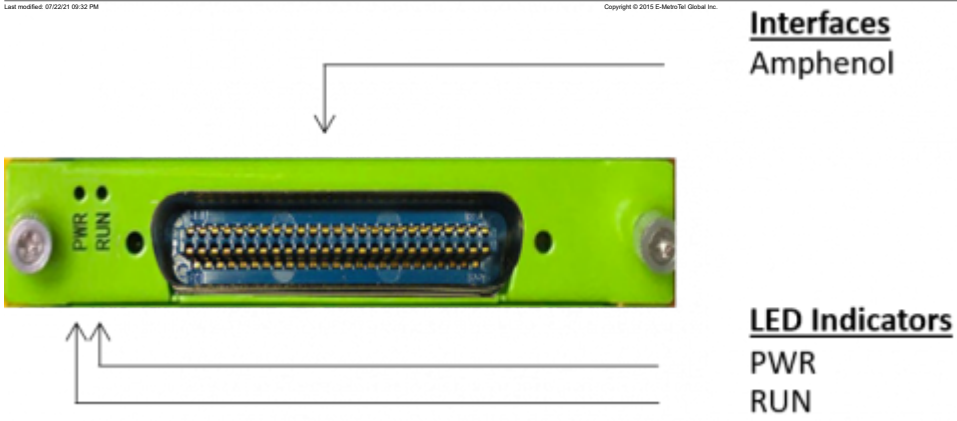
FXS 8-port Card

FXS 16-port Card

DSM16p Card

The DSM16 Digital Line Card supports E-MetroTel digital phones as well as Nortel/Avaya T and M series sets for Norstar/BCM migration and Meridian digital sets.

Front Panel



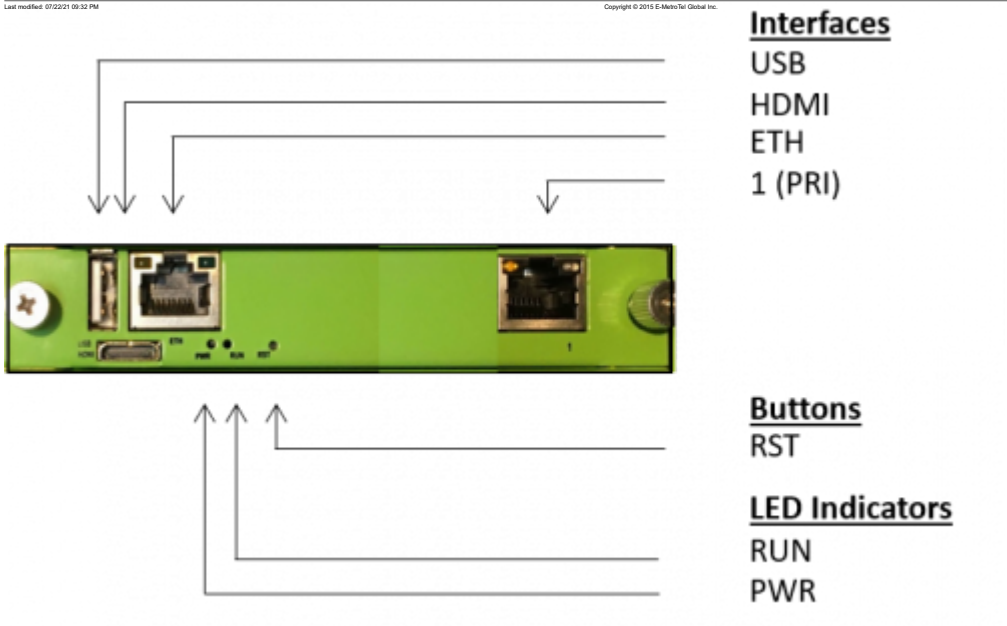
Interface	Description
	Connection to Digital Telephone Sets **Default IP Address:** DHCP **Type:** RJ-21 *Note: When using default UCX IP addressing, this card will be on the **backplane ethernet** subnet.* *192.168.100.xx (i5 Processor)* *192.168.1.xx (2930 Processor)*

Indicator	
PWR	**Green:** Indicates card has power from backplane.
RUN	**Green:** Indicates the card processes are running. **Red:** Indicates an operational failure

PRI-1 Card

The PRI-1card provides a standard high speed (T1, or 1.544 Mb/s) interface for 23 voice channels.

Front Panel



Interface	Description
USB	Not used in Galaxy Expand configurations **Type:** USB 2.0 A
HDMI	Provide access to the processor video feed for creating a headed system for troubleshooting. **Type:** HDMI Type C
ETH	Not used in Galaxy Expand configurations **Default IP Address:** 192.168.1.175 **Type:** RJ-45

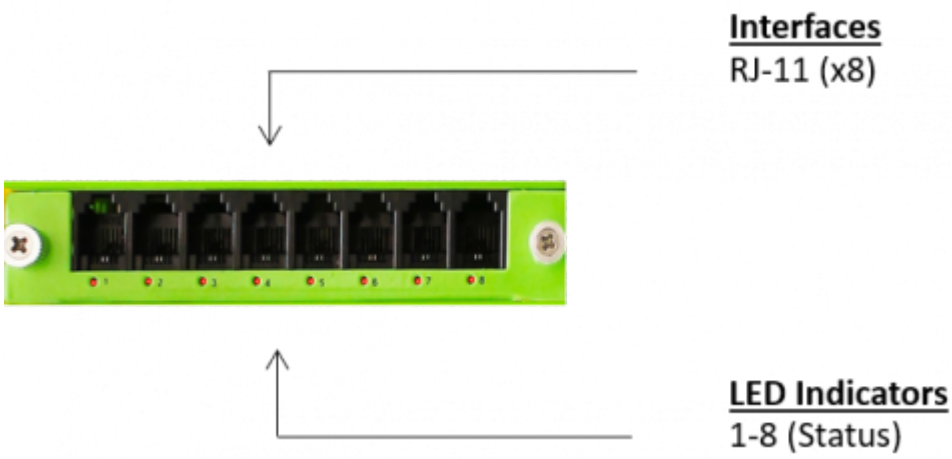
Buttons	Description
RST	Reset the card and restart the UXc software.

Interface	Description
RUN	**Slow Blink** (Green 2s and Flash 0.1s) Indicates the card software is running normally **Fast Blink** (Green 0.5s and Flash 0.5s) indicates abnormal situation **No Blink:** Dahdi Error
PWR	**Green**: indicates that the card is receiving power from the Galaxy Expand chassis

FXO 8-port Card

The FXO 8-port Card provides standard connection to analog lines typically from a PSTN service provider.

Front Panel



Interface	Description
1-8	Standard analog interface connection to a service provider PSTN network (or similar) **Type:** RJ-11

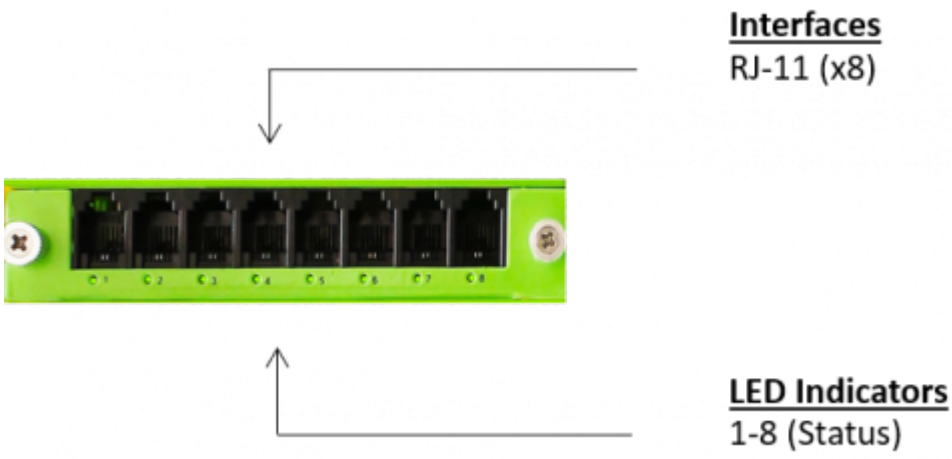
Note: This card uses DADHI to communicate with a Galaxy Expand Server Card, so it must be in the same Galaxy Expand chassis as the server card.

Indicator	Description
1-8	**Flashing RED:** Indicates an FXO port with no trunk connection. Indicator turns off when connected to a trunk.

FXS 8-port Card

The FXS 8-port Card provides standard connection to analog telephones or similar devices.

Front Panel



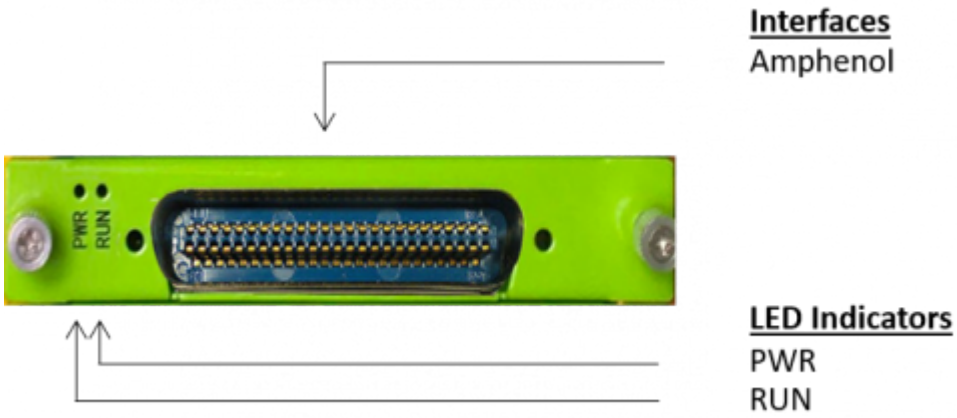
Interface	Description
1-8	Standard analog interface connection to a analog telephone or similar device **Type:** RJ-11 *Note: This card uses DADHI to communicate with a Galaxy Expand Server Card, so it must be in the same Galaxy Expand chassis as the server card.*

Indicator	Description
1-8	**GREEN:** Indicates the card is an FXS card.

FXS 16-port Card

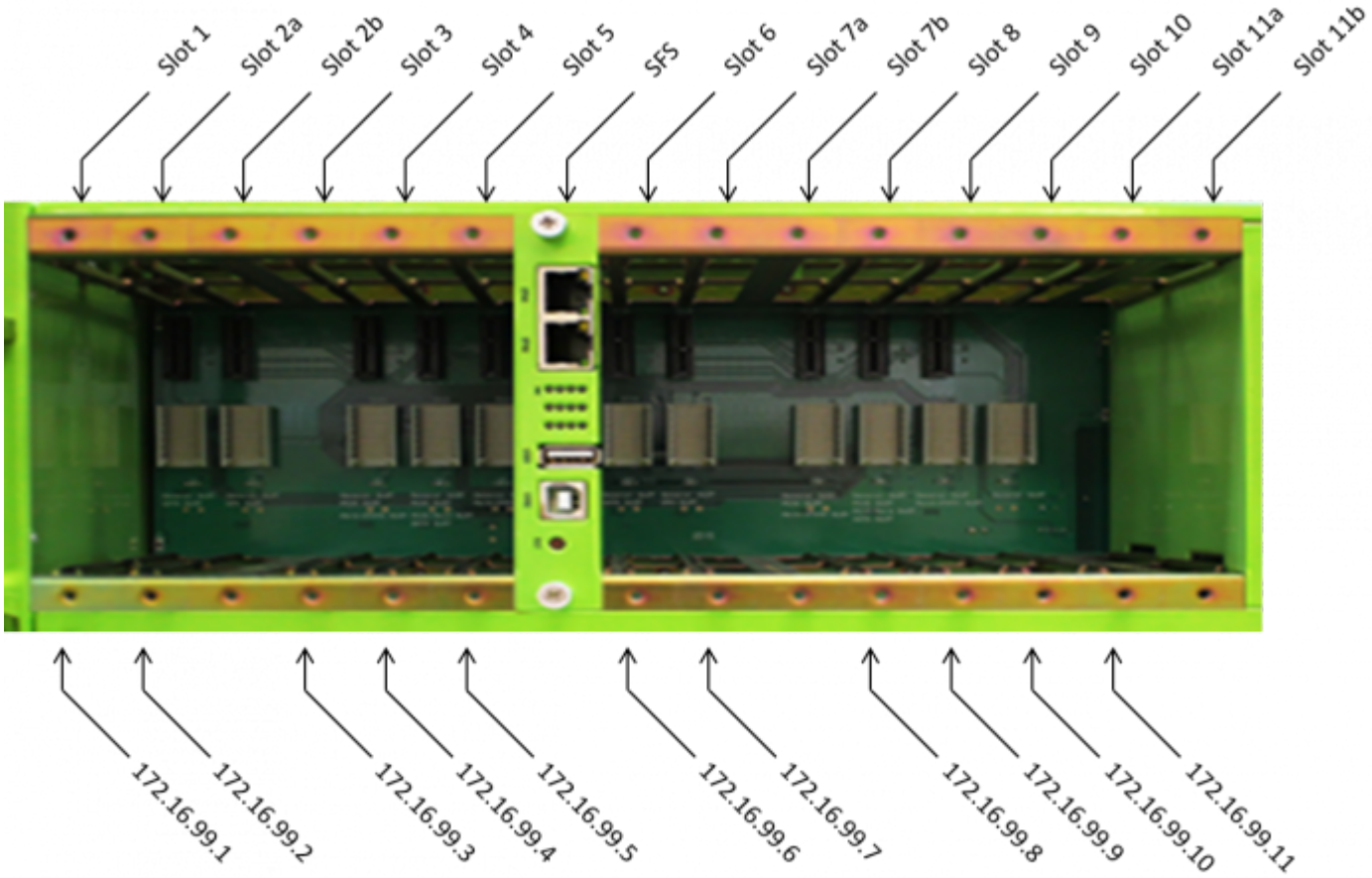
The FXS 16-port Card provides standard connection via an amphenol interface to analog telephones or similar devices.

Front Panel



Interface	Description
Amphenol	Connection to Analog Telephone Sets **Default IP Address**: 172.16.99."cardslot" (see diagram below) **Type:** RJ-21

Indicator	Description
PWR:	**GREEN:** Indicates the card processes are running.
RUN:	**Red:** Indicates an operational failure



Factory Default Backplane FXS 16 Port Card Assignments: