Empowered by Innovation NEC

SV8100 – Interfaces

Pre-Sales Support

UNIVERGE SV8100
Release 5

Doc. Version 5.00

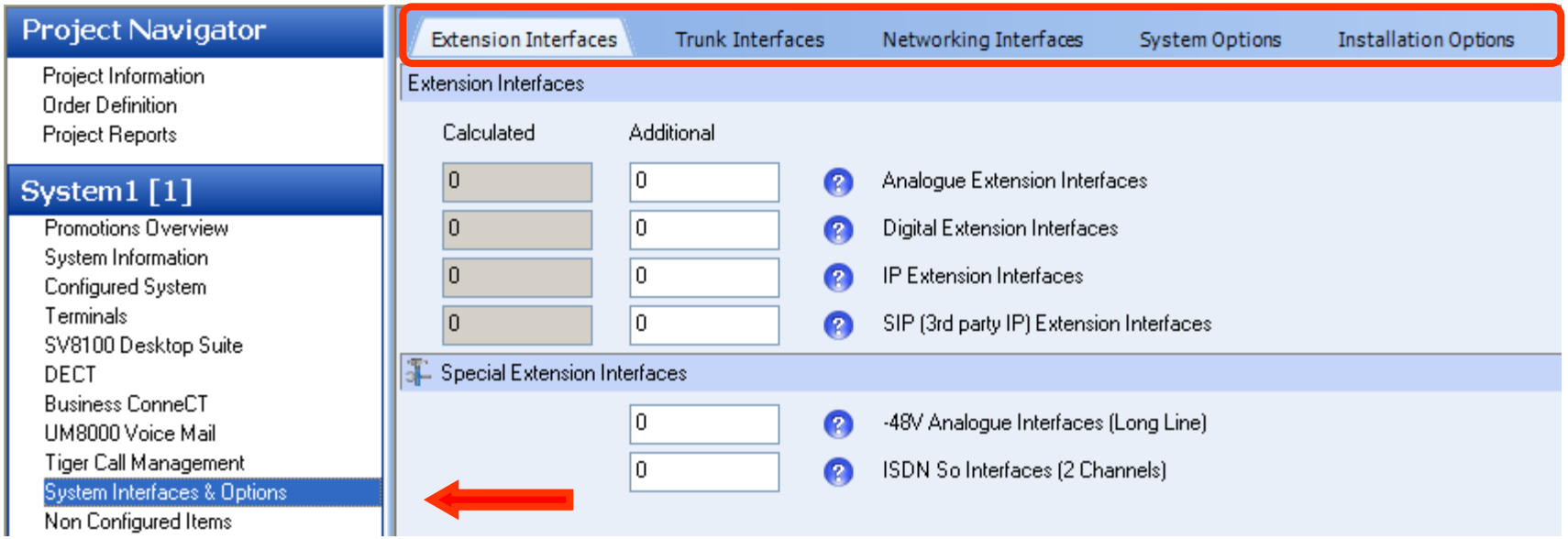
Agenda

- Extension interfaces
- Trunk interfaces
- Networking interfaces
- Auxilary interfaces
- System options
- System expansion

Interface

- **Extension interfaces**
- Trunk interfaces
- Networking interfaces
- Auxilary interfaces
- System options
- System expansion

- Analogue Extension Interfaces
- Digital Extension Interfaces
- IP Extension Interfaces
- SIP (3rd party IP) Extension Interfaces



Analogue Extension Interfaces

Boards

- CD-4LCA (4 port)
- CD-8LCA (8 port)

Daughter boards

- PZ-4LCA (4 port)
- PZ-8LCE (8 port)

The boards and daughter boards can be combined randomly to obtain a blade with 4, 8, 12, or 16 ports

Supported terminals

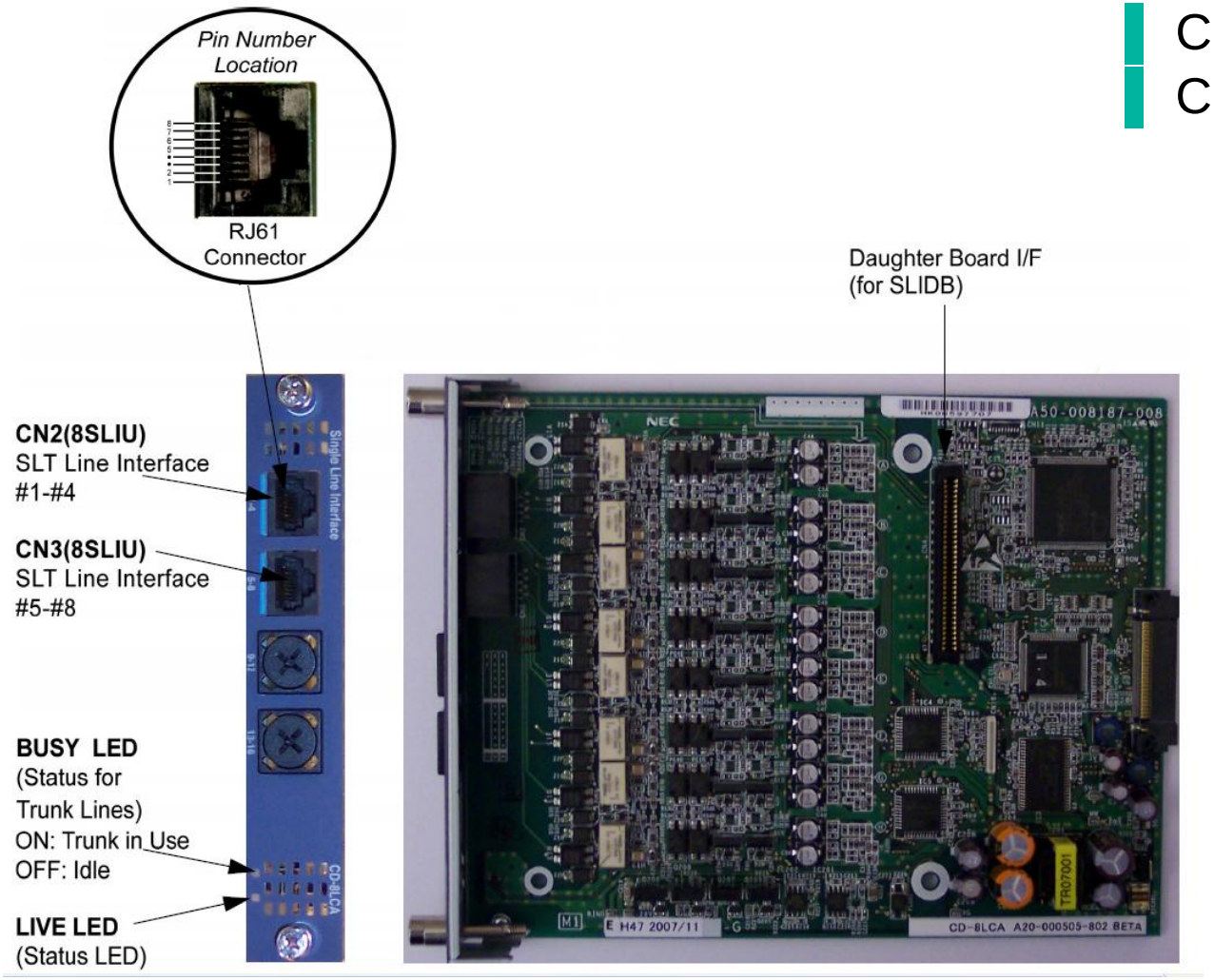
Analog terminal support, also Aspire key-telephones

Analogue Extension Interfaces

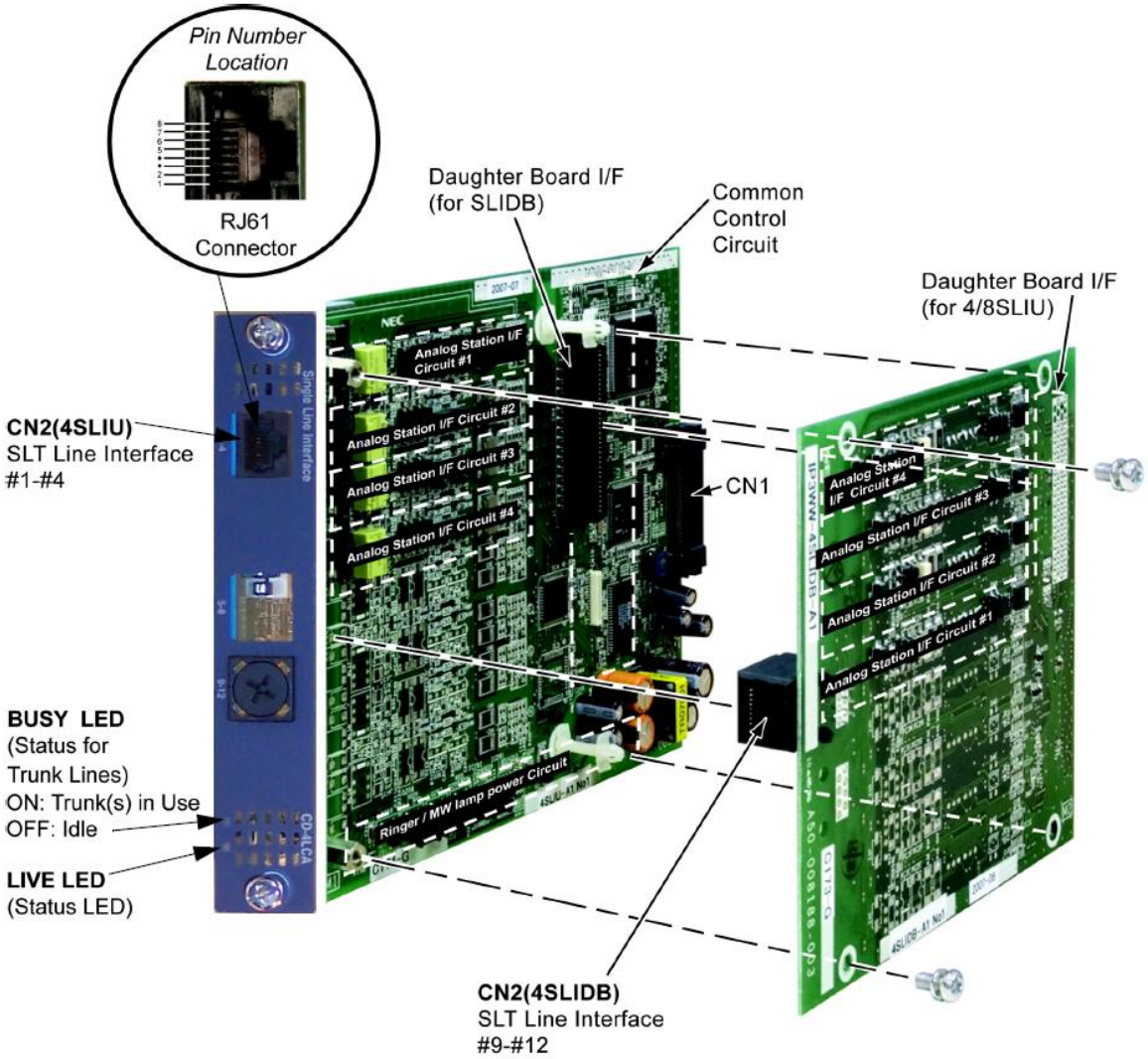
- Max. 5x CD-8LCA + 5x PZ-8LCE per chassis (because of power considerations)
- Line voltage -24V, to save power
- Max distance to telephone set:
  - up to 2500m (depending on cable diameter)
- Boards support Message Waiting Indication (MW)
  - Technology: high voltage (Polarity Reversal is not supported)
  - Compatible with BaseLine Pro CLI
- Boards support Calling Line Identity Presentation (CLIP)
  - Technology: ETSI-FSK and DTMF (test reports available)
  - Compatible with BaseLine Pro CLI

Analogue Extension Interfaces

- CD-8LCA
- CD-4LCA



Analogue Extension Interfaces



- CD-4LCA
- CD-8LCA

combined with

- PZ-4LCA
- PZ-8LCE

Special Extension interface

-48V Analogue Interface (Long Line)

- CD-4DIOPB

Provides:

4, Long Line, Analogue Interfaces to connect :

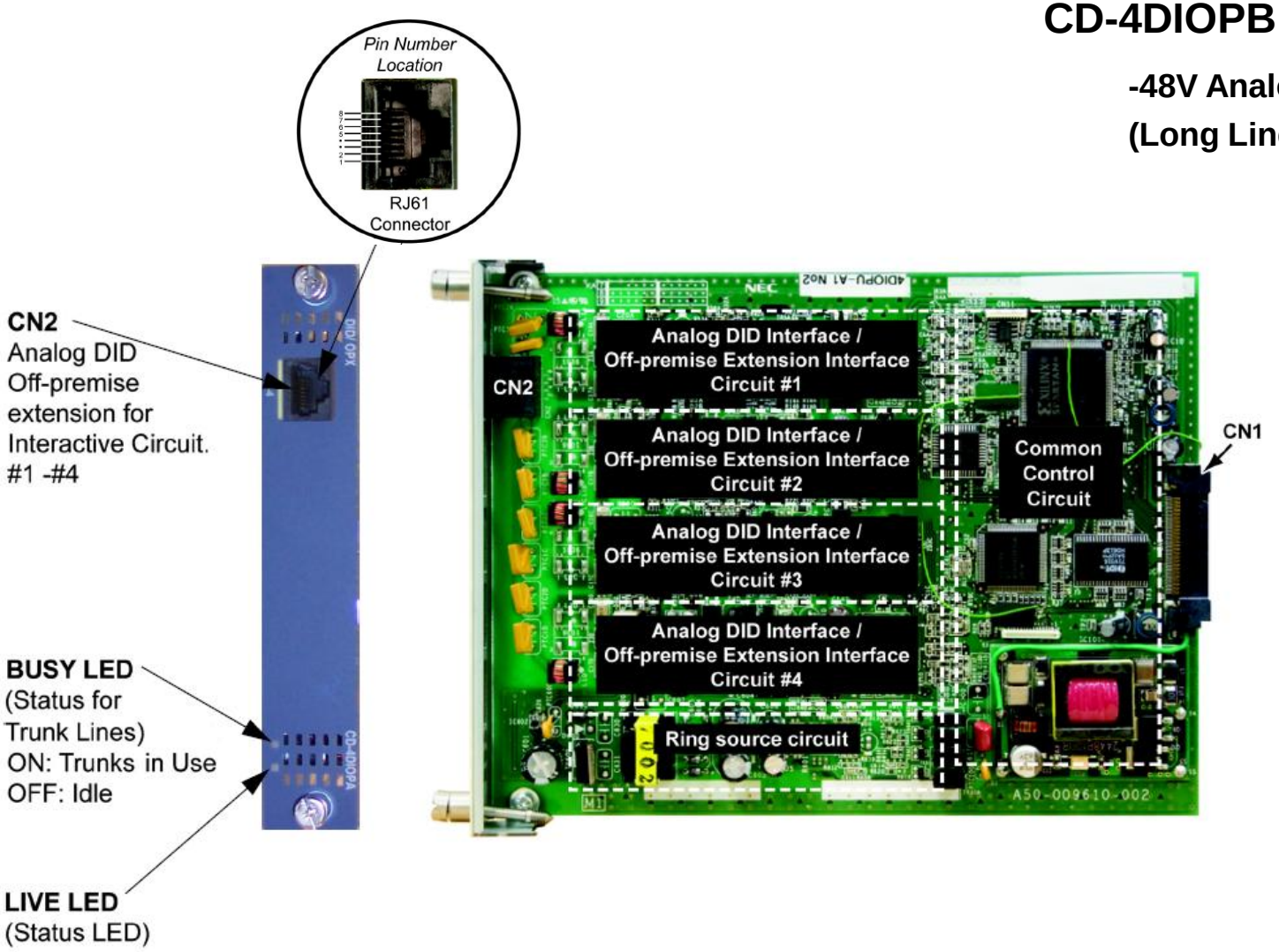
- Off-premise Analogue / SLT phones
- Long distance Analogue / SLT phones

- Access to the same features and abilities as On-premise phones
- 2 Wire, not polarity sensitive, station interface
- Max distance: up to 10.600 m (depending on cable diameter)
- Max. 1600 Ω (incl. station) between DIOP board and phone
- Line voltage = -48V
- Max. 23 blades in 4 chassis (Networked: 50 blades)

Special Extension interface

CD-4DIOPB

-48V Analogue Interface (Long Line)



Digital Extension Interfaces

Boards

- CD-8DLCA (8 port)
- CD-16DLCA (16 port)

Daughter boards

- PZ-8DLCB (8 port)

The CD-8DLCA and PZ-8DLCB can be combined to obtain16 ports

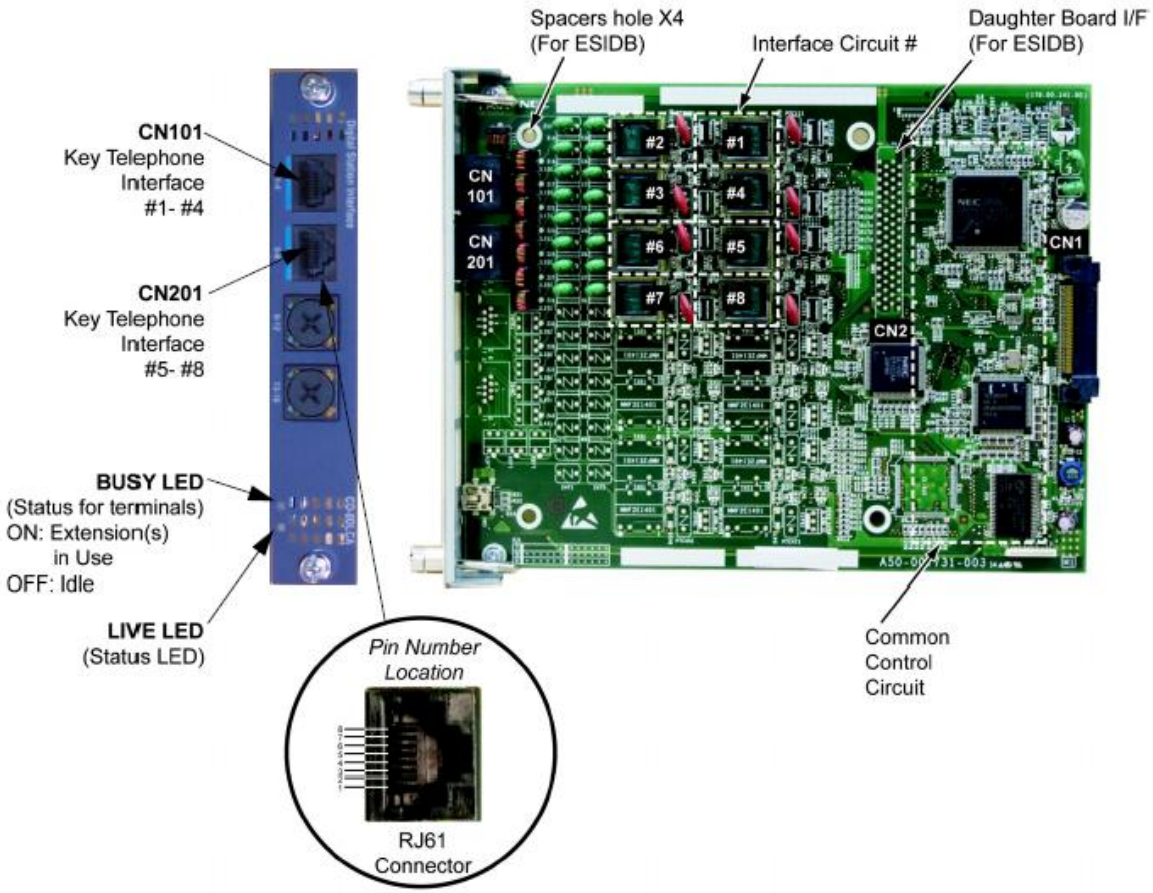
Supported terminals

- DT3x0
- Dterm Digital, IPK Digital, Aspire key telephones
- DSS consoles
- PGDAD adapters

Constrains

- Max 5 cards (=80 ports) per chassis because of power considerations
- Max distance: up to 800m (depending on cable diameter)

Digital Extension Interfaces



CD-8DLCA

PZ-8DLCB

Special Extension interface

ISDN BRI - S0 Interfaces (2 Channels)

Board

- CD-2BRIA

Daughter board

- PZ-2BRIA

Basic rate ISDN blade:

- 2 S0-bus interfaces (total 4 Channels)
- PZ-2BRIA daughter board can be added to obtain 4 S0-bus interfaces (total 8 Channels)

ISDN - BRI Extension

Pos.	Basic rate as extension line Supplementary Service	S/T	IPK	SV8100 ASPIRE IPC500	SV8300 2000IPS	Cygnus Aspire-GE	Cygnus IPKII-GE
1	Multiple Subscriber Number (MSN)	x	No[1]	Yes	Yes	Yes	Yes
2	Sub addressing (SUB)	x	No[1]	Yes	Yes	Yes	Yes
3	Calling Line Identification Presentation (CLIP)	x	No[1]	Yes	Yes	Yes	Yes
4	Calling Line Identification Restriction (CLIR)						
a	• Permanent	x	No[1]	Yes	Yes	Yes	Yes
b	• On a per-call basis	x	No[1]	No[2]	No	No[2]	No[2]
5	Connected Line Identification Presentation (COLP)	x	No[1]	No	Yes	No	No
6	Connected Line Identification Restriction (COLR)						
a	• Permanent	x	No[1]	No	No	No	No
b	• On a per-call basis	x	No[1]	No	No	No	No
7	Malicious Call Identification (MCID)[3]	x	No[1]	No	No	No	No
8	Terminal Portability (TP)	x	No[1]	No	No	No	No
9	Call Forwarding services						
a	• Call Forwarding Unconditional (CFU)	x	No[1]	No	No	No	No
b	• Call Forwarding Busy (CFB)	x	No[1]	No	No	No	No
c	• Call Forwarding No Reply (CFNR)	x	No[1]	No	No	No	No
10	Call Deflection (CD)	x	No[1]	Yes	No	Yes	Yes
11	Explicit Call Transfer (ECT)	x	No[1]	No[4]	No	No[4]	No[4]
12	Call Waiting (CW)	x	No[1]	No	No	No	No
13	Hold (HOLD)	x	No[1]	Yes	No	Yes	Yes
14	Completion of Calls to Busy Subscriber (CCBS)	x	No[1]	No	No	No	No
15	Conference call, add-on (CONF)	x	No[1]	No	No	No	No
16	Three-Party (3PTY)	x	No[1]	No	No	No	No
17	Closed User Group (CUG)	x	No[1]	No	No	No	No

ISDN–BRI extension

- If required ask PortfolioSupport helpdesk to get the explanation of the numbers (tiny details)
- Info for 2000IPS = SV8300
- *Notes in notes pages*

Pos.	Basic rate as extension line Supplementary Service	S/T	IPK	SV8100 ASPIRE IPC500	SV8300 2000IPS	Cygnus Aspire-GE	Cygnus IPKII-GE
18	Advice of Charge (AOC) [5]						
a	• Charging information at the end of the call (AOC-E)	x	No[1]	Yes	No	Yes	Yes
b	• Charging information during the call (AOC-D)	x	No[1]	Yes	No	Yes	Yes
c	• Charging information at call set-up time (AOC-S)	x	No[1]	No	No	No	No
19	User-to-User Signalling						
	• Service 1 (UUS1)	x	No[1]	Yes[9]	No	Yes[9]	Yes[9]
	• Service 2 (UUS2	x	No[1]	No	No	No	No
	• Service 3 (UUS3)	x	No[1]	No	No	No	No
20	Miscellaneous						
	• Message Waiting Indication (MWI)	x	No[1]	No	No	No	No

Combi blade

Board

- CD-LTA
  - 8 digital extension ports
  - 2 analog extension ports
- CD-LTB
  - 2 analog extension ports

Daughter boards:

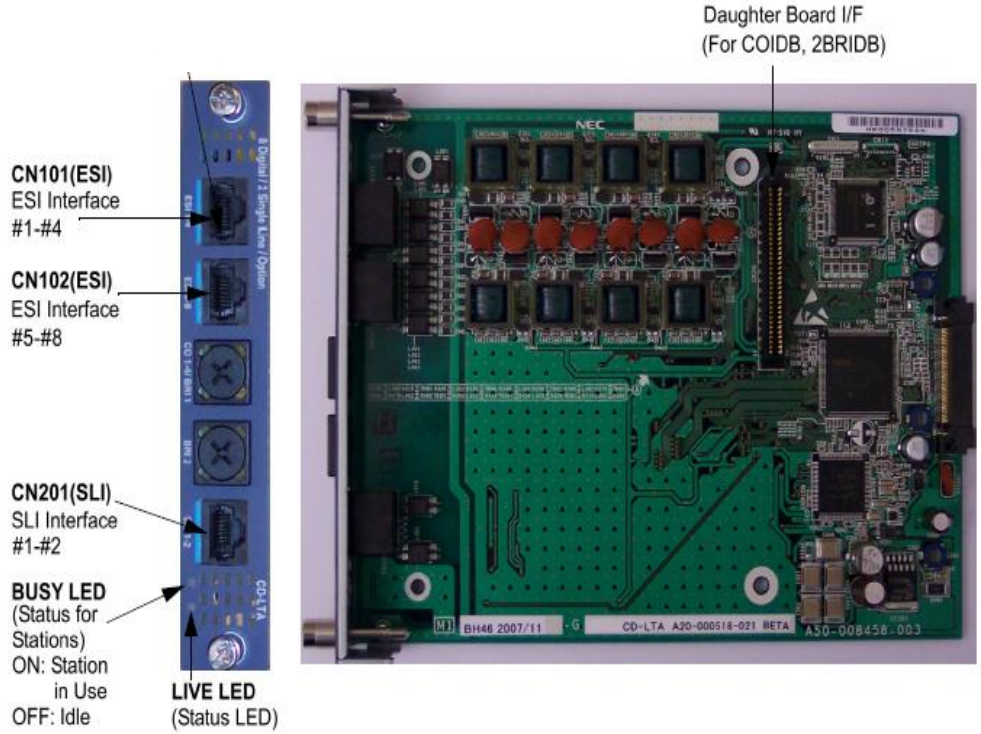
CD-LTA\B can be combined with

Either

- PZ-4COTE analog trunk

Or

- PZ-2BRIA ISDN trunk



Combi blade

CD-LTA \ CD-LTB

- Intended for small companies
- Max. 2 per SV8100
  - NB. Max. 23 per total system when PZ-ME50 installed
- Configurable for initial system
- Prophix calculates best price and uses combi blades for that purpose

Extension Interfaces - Boundaries

Chassis size		9.5”	19”				IP feature network
Amount of chassis		1+cpu	1+cpu	1-cpu	2 (12)	3 (18)	4 (24)	
CD-4DIOPB	Long Line Analog	2	5	6	11	17	23	128
CD-4LCA	SLT interface	2	5	6	11	17	23	32
PZ-4LCA	SLT interface	2	5	6	11	17	23	32
CD-8DLCA	Digital interface	2	5	6	11	17	23	32
PZ-8DLCB	Digital interface	2	5	6	11	17	23	32
CD-16DLCA	Digital interface	2	5	6	11	17	20	32
CD-8LCA	SLT interface	2	5	6	11	17	23	32
PZ-8LCE	SLT interface	2	5	6	11	17	20	32
CD-LTA	2 Analog / 8 Digit phones 1)	2	5	6	11	17	23	32
CD-LTB	2 Analog phones 1)	2	5	6	11	17	23	32

1) Max is only 2 boards without a PZ-_ME509 installed

IP & SIP Extension Interfaces

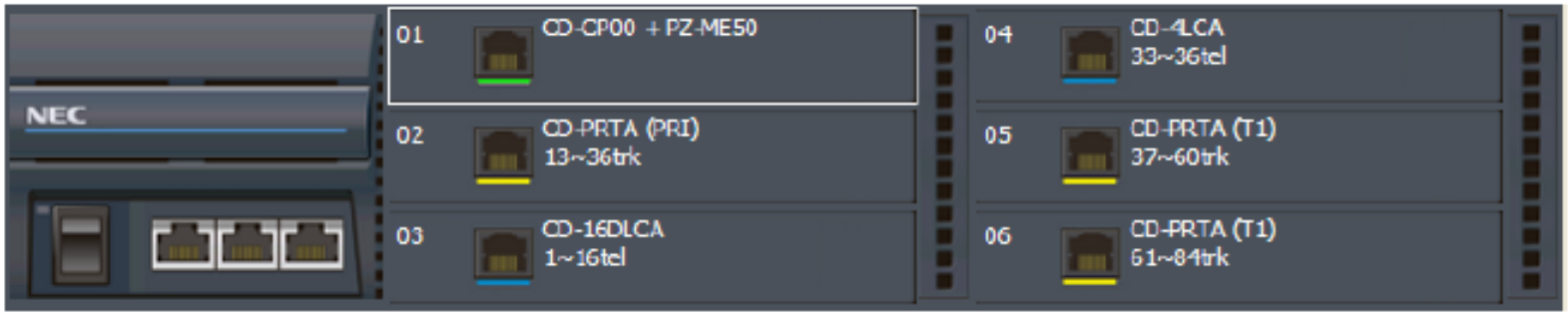
For Information about

- IP Extension Interfaces and
- SIP (3rd part IP) Extension Interfaces

See the concerning sheets in the System presentation and Telephone presentation

Agenda

- Extension interfaces
- **Trunk interfaces**
- Networking interfaces
- Auxilary interfaces
- System options
- System expansion



- Analogue trunk interface
- ISDN Basic Rate interface
- ISDN Primary Rate interface
- SIP (IP) trunk interface

Analogue trunk

CD-4COTA CO trunk interface blade:

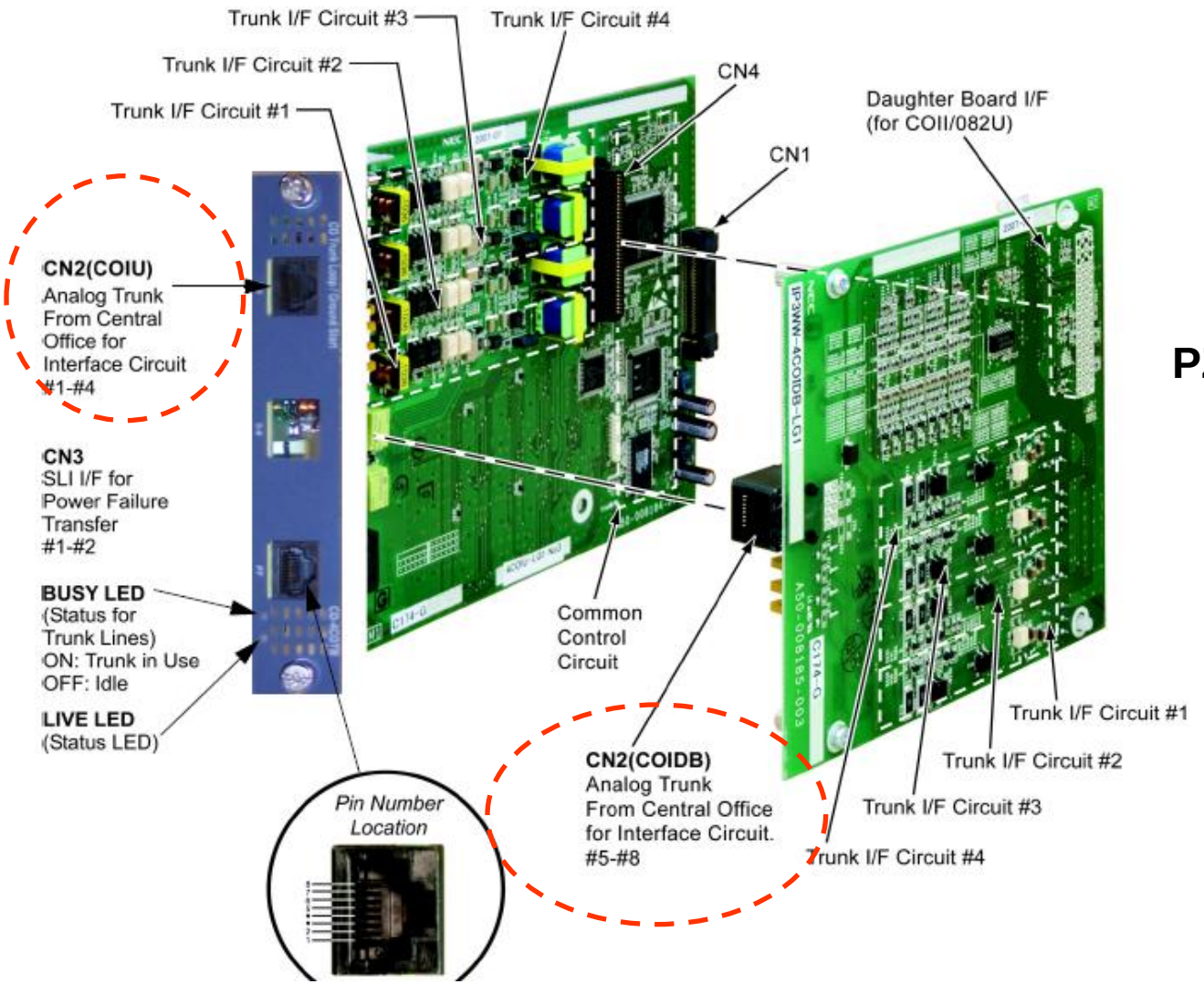
- RJ61 trunk connection to PSTN
- Analogue Trunks: Loop start, Unguarded clear, Disconnect clear
- CLI detection / generation fully compliant for FSK and DTMF
- 2 power failure transfer circuits for single line telephones
- CD-4COTA combined with **PZ-4COTE**: Provides 8 analogue trunks

Trunks **Telephone**

Chassis	9.5”	19”					
# SV8100s		1+cpu	1-cpu	2	3	4	Network
CD-4COTA	2	5	6	11	17	23	25
PZ-4COTE	2	5	6	11	17	23	25
COTA channels	16	40	40	88	136	184	200

Analogue trunk

CD-4COTA

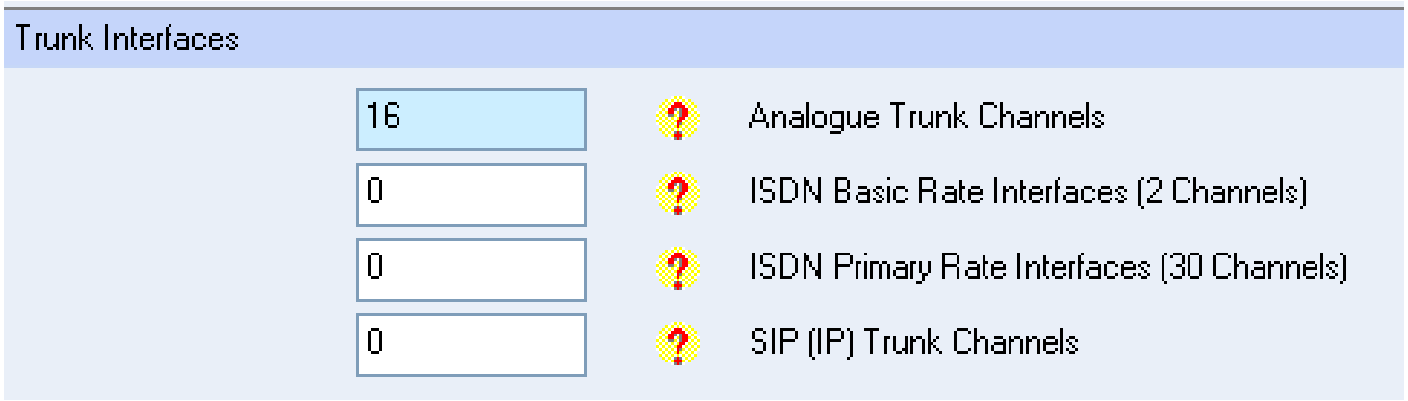


PZ-4COTE

Analogue trunk

Example: SV8100 with 16 analogue trunk channels

Qty	Item	Prophix
1	CPU blade	CD-CP00-EU
2	Rack mount	CH2U Rack mount kit
2	Chassis	CHS2U-EU
1	Patch panel	24 Port patch panel
1	Cable	RJ21X-6xRJ61X 4.5 m
2	Analogue trunk blade	CD-4COTA
2	Analogue trunk daughter board	PZ-4COTE



Agenda

- Extension interfaces
- **Trunk interfaces**
- Networking interfaces
- Auxilary interfaces
- System options
- System expansion

- Analogue trunk interface
- **ISDN Basic Rate interface**
- ISDN Primary Rate interface
- SIP (IP) trunk interface

The Univerge SV8100 system is intended to be connected to analog and digital networks and supports a wide range of peripheral equipment. The following interfaces are available for connection to public analog and digital telecommunication networks:

TBR3	ISDN basic rate interface
TBR4	ISDN primary rate interface
TBR21	Analogue interface

To take advantage of all features of this system and the connected equipment, the country or network specific features should match the supported features of the system. For an overview of the supported features, refer to the detailed documentation that comes with this system, contact your local NEC Philips representative or the support desk of NEC Philips Unified Solutions.

ISDN–BRI trunk

CD-2BRIA Basic rate ISDN trunk blade:

- 2 S0-bus interfaces
- Can be combined with 2 S0-bus interfaces of **PZ-2BRIA** daughter board

ISDN – BRI / PRI Features

- DID Line Service
- CLIP – Calling Line Identification Presentation
- CPN – Calling Party Number presentation from station
- SMDR includes dialed number

Chassis	9.5”	19”					
# SV8100s		1+cpu	1-cpu	2	3	4	Network
CD-2BRIA blades	2	5	6	11	17	23	25
PZ-2BRIA boards	2	5	6	11	17	23	25
ISDN BRI channels	16	40	40	88	136	184	200

ISDN–BRI daughter board

PZ-2BRIA daughter board

- Trunk circuits can be connected to either **ISDN trunks** or **ISDN telephones**, depending on:
  - T / S Interface configured in system programming
- ISDN S0 terminals (e.g. G4 Fax):
  - Point-Point connection (500m)
  - Point-Multipoint connection (short passive bus – 100m)
  - Point-Multipoint connection (extended passive bus – 300/50m)
- Basic call (voice & unrestricted 64kbit/s)
- Terminal power supply can be provided by BRIA line card
- *All supported supplementary services on next slides*

ISDN–BRI daughter board

Trunks

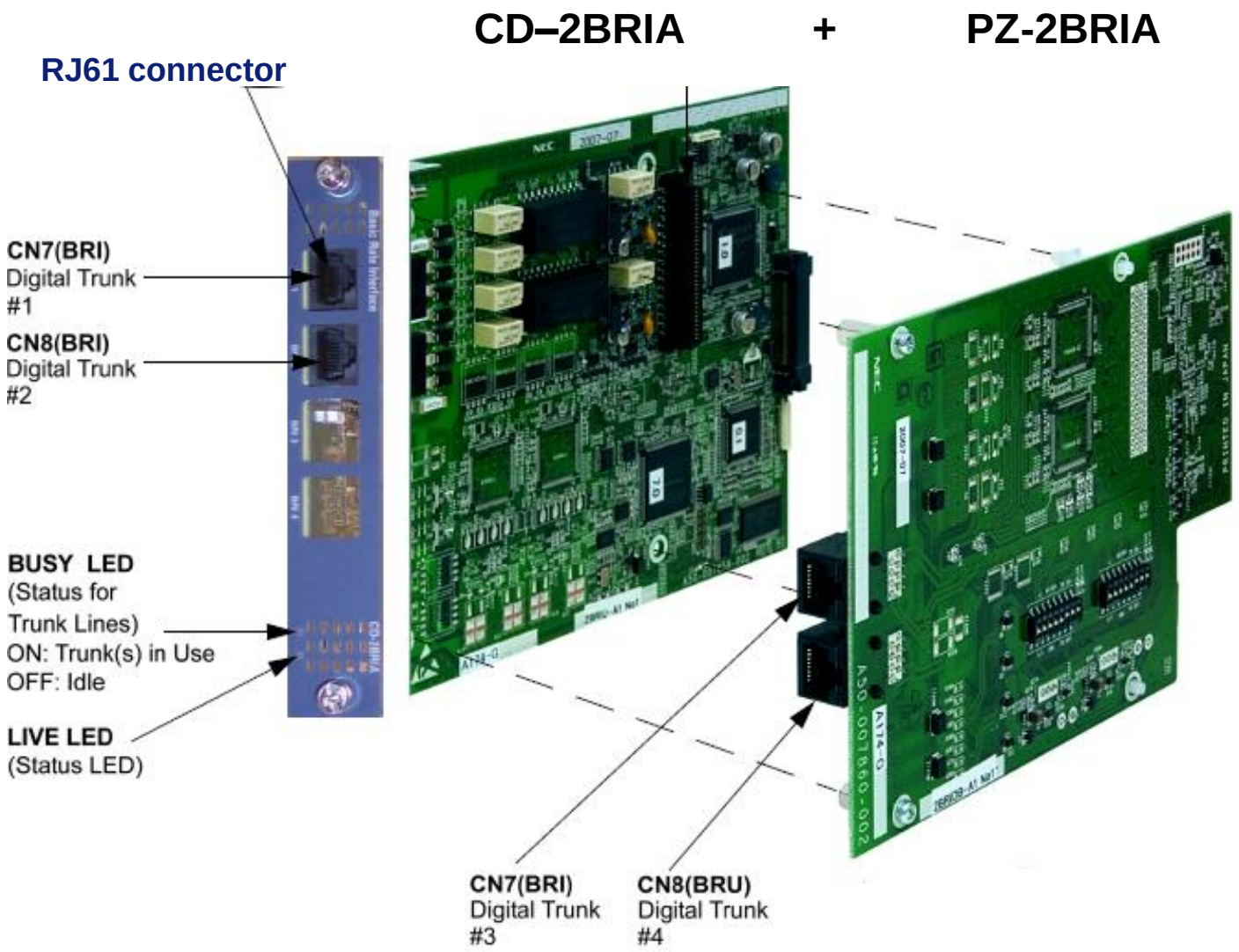
Pos.	ISDN trunk with basic rate interface Supplementary Service	S/T	T	IPK	SV8100 ASPIRE IPC500	SV8300 2000IPS	Cygnus Aspire-GE	Cygnus IPKII-GE
1	Multiple Subscriber Number (MSN)	x	-	Yes	Yes	Yes	Yes	Yes
2	Direct Dialling IN (DDI)	-	x	Yes [1]	Yes	Yes	Yes	Yes
3	Sub addressing (SUB)	x	x	No	No	Yes	No	No
4	Calling Line Identification services							
a	• Calling Line Identification Presentation (CLIP)	x	x	Yes	Yes	Yes	Yes	Yes
b	• Support of "no screening option"	-	x	No	No	Yes	No	No
5	Calling Line Identification Restriction (CLIR)							
a	• Permanent	x	x	Yes	Yes [2]	Yes	Yes [2]	Yes [2]
b	• On a per-call basis	x	x	No	Yes [3]	No	Yes [3]	Yes [3]
6	Connected Line Identification Presentation (COLP)	x	x	Yes [4]	No [5]	Yes [4]	No [5]	No [5]
7	Connected Line Identification Restriction (COLR)							
a	• Permanent	x	x	No	No [6]	Yes	No [6]	No [6]
b	• On a per-call basis	x	x	No	No [6]	No	No [6]	No [6]
8	Malicious Call Identification (MCID) [7]	x	x	No	No	No	No	No
9	Terminal Portability (TP)	x	-	No	No	No	No	No
10	Call Forwarding services							
a	• Call Forwarding Unconditional (CFU)	x	x	No	No	No	No	No
b	• Call Forwarding Busy (CFB)	x	x	No	No	No	No	No
c	• Call Forwarding No Reply (CFNR)	x	x	No	No	No	No	No
11	Deflection services							
a	• Call Deflection (CD)	x	-	No	Yes	No	Yes	Yes
b	• Partial Rerouting (CD PR) [8]	-	x	No	Yes	No	Yes	Yes
12	Explicit Call Transfer (ECT)	x	-	No	No	No	No	No
13	Call Waiting (CW)	x	-	No	No	No	No	No
14	Hold (HOLD)	x	-	No	No	No	No	No

ISDN–BRI daughter board

- If required ask PortfolioSupport helpdesk to get the explanation of the numbers (tiny details)
- *Notes in notes pages*

Pos.	ISDN trunk with basic rate interface Supplementary Service	S/T	T	IPK	SV8100 ASPIRE IPC500	SV8300 2000IPS	Cygnus Aspire-GE	Cygnus IPKII-GE
15	Completion of Calls to Busy Subscriber (CCBS)	x	x	No	No	No	No	No
16	Conference call, add-on (CONF)	x	x	No	No	No	No	No
17	Three-Party (3PTY)	x	x	No	No	No	No	No
18	Closed User Group (CUG)	x	x	No	No	No	No	No
19	Advice of Charge (AOC) [9]							
a	• Charging information at the end of the call (AOC-E)	x	x	Yes [10]	Yes [11]	Yes	Yes [11]	Yes [11]
b	• Charging information during the call (AOC-D)	x	x	No	Yes [12]	No	Yes [12]	Yes [12]
c	• Charging information at call set-up time (AOC-S)	x	x	No	No	No	No	No
20	User-to-User Signalling • Service 1 (UUS1) • Service 3 (UUS2 • Service 3 (UUS3)	x	x	No	No	No	No	No
21	Miscellaneous							
	• Message Waiting Indication (MWI)	x	-	No	No	No	No	No
	• Synchronisation Date/Time	x	x	No	Yes [13]	No	Yes [13]	Yes [13]

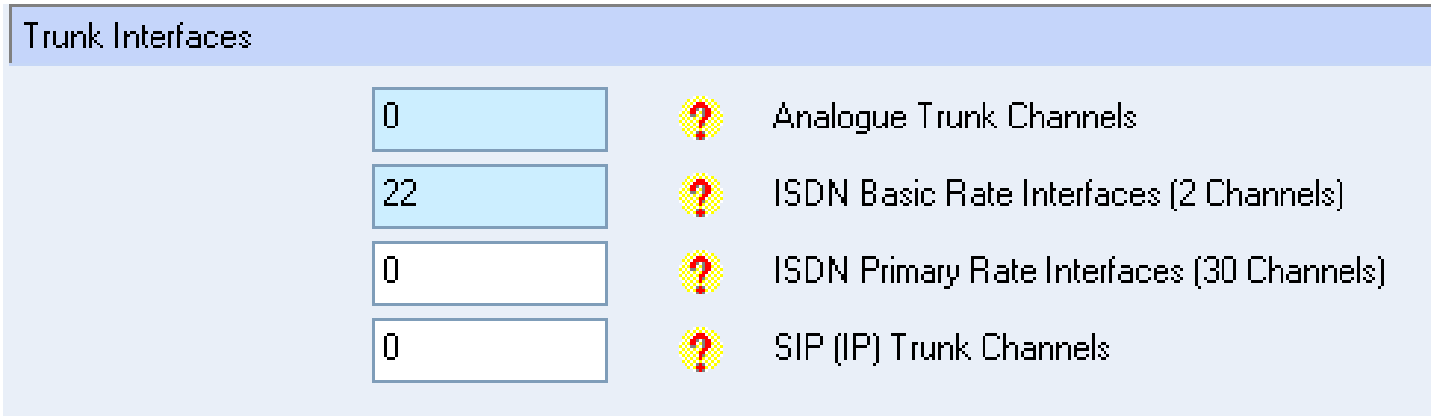
ISDN–BRI daughter board



ISDN–BRI trunk

Example: SV8100 with 22 ISDN basic rate channels

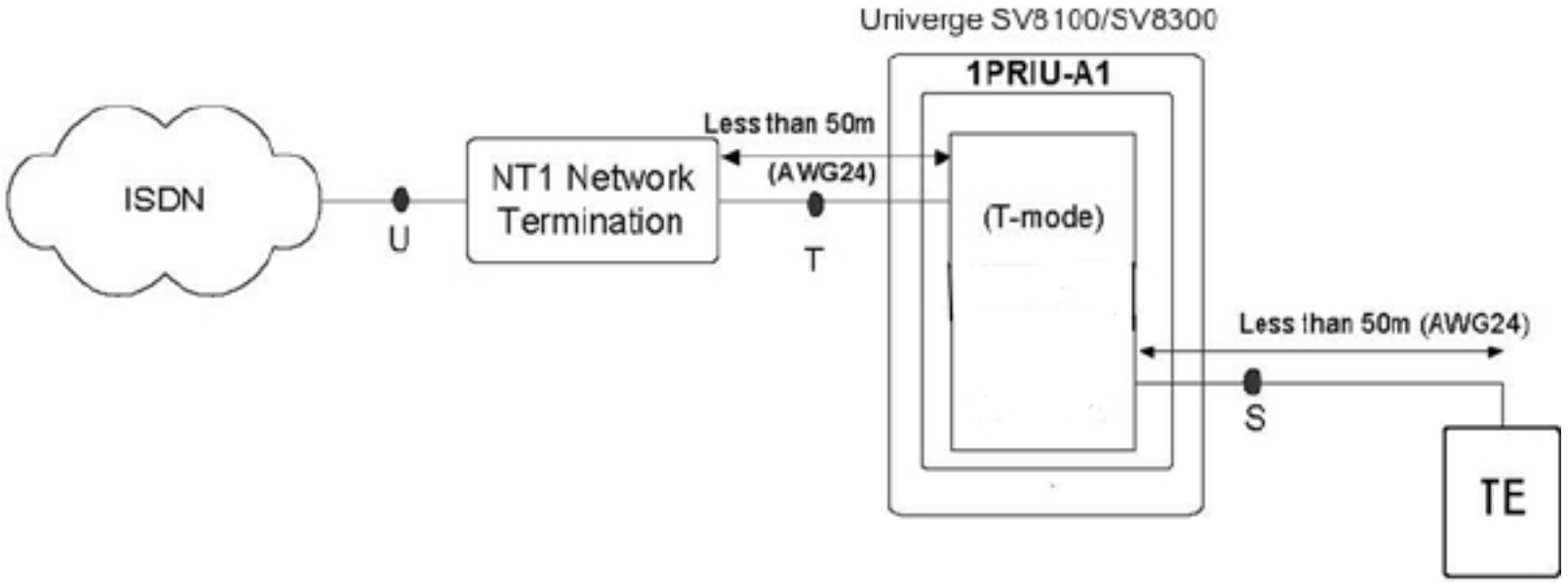
Qty	Item	Prophix
1	CPU blade	CD-CP00-EU
2	Rack mount	CH2U Rack mount kit
2	Chassis	CHS2U-EU
6	ISDN-BRI blade	CD-2BRIA
5	ISDN-BRI daughter board	PZ-2BRIA
1	Board in EXIFU slot CPU blade	PZ-BS10
1	Board for each expansion chassis	PZ-BS11



Agenda

- Extension interfaces
- **Trunk interfaces**
- Networking interfaces
- Auxilary interfaces
- System options
- System expansion

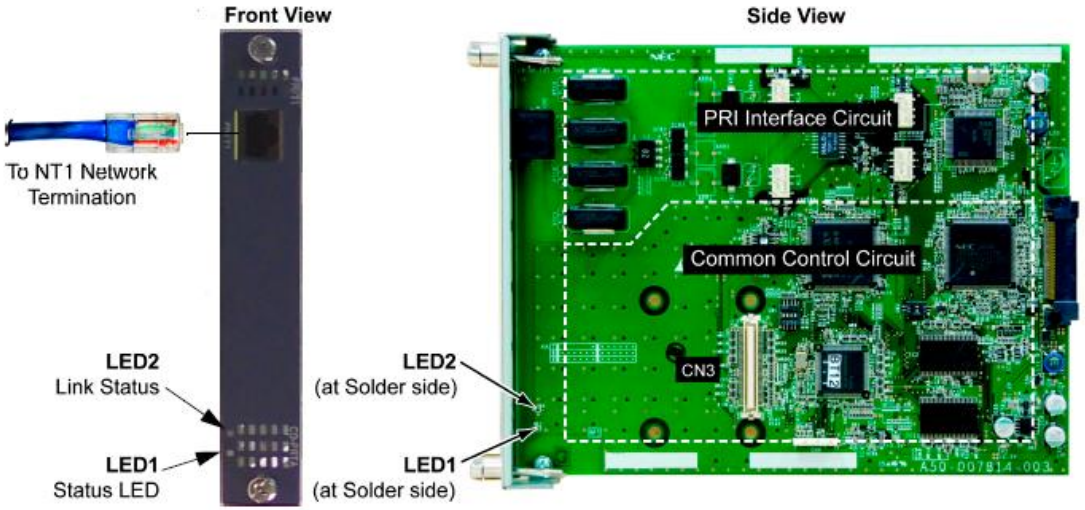
- Analogue trunk interface
- ISDN Basic Rate interface
- **ISDN Primary Rate interface**
- SIP (IP) trunk interface



ISDN–PRI trunk

CD-PRTA blade

- E1, 2.048 Mbps
- PRI (Primary Rate Interface)
- 30 B + 2D
- Same card to be used for ‘Fractional’ functionality
- Connects to the network via NT1 network termination
- Display of incoming caller’s name & nr (if allowed by Telco)

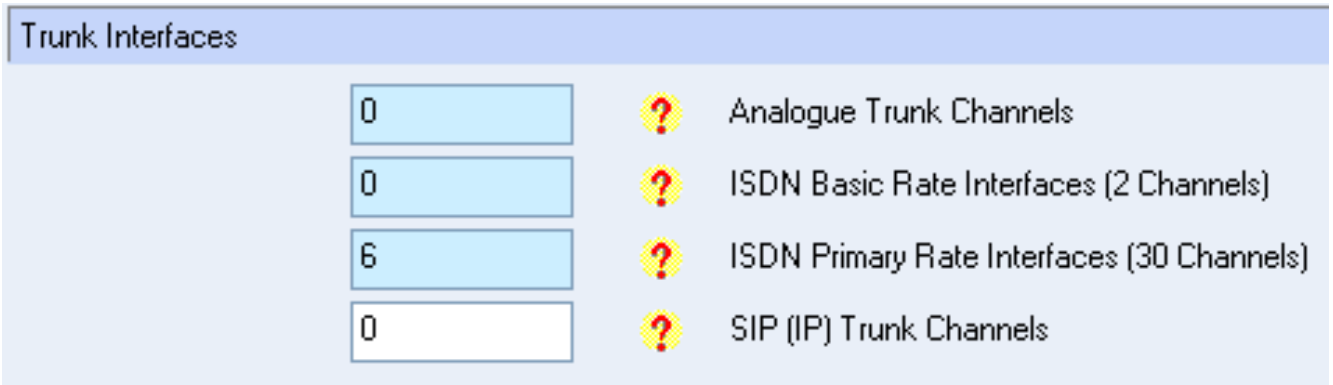


Chassis	9.5”	19”				
# SV8100s		1+cpu	1-cpu	2	3	4	Network
CD-PRTA blades	2	3	3	6	9	12	8
ISDN PRI channels	60	90	90	180	270	360	240

ISDN–PRI trunk

Example: SV8100 with 180 ISDN-PRI channels = maximum configuration

Qty	Item	Prophix
1	CPU blade	CD-CP00-EU
2	Rack mount	CH2U Rack mount kit
2	Chassis	CHS2U-EU
1	Board in EXIFU slot CPU blade	PZ-BS10
1	Board for each expansion chassis	PZ-BS11
1	Enhanced memory	PZ-ME50-EU
6	ISDN_Pri trunk interface	CD-PRTA
1	Port licenses	lk-sys-256 port-lic



ISDN–PRI trunk

Pos.	Primary rate ISDN Trunk Supplementary Service	T	IPK	SV8100 ASPIRE IPC500	SV8300 2000IPS	Cygnus Aspire-GE	Cygnus IPKII-GE
1	Direct Dialling IN (DDI)	x		Yes[1]	Yes	Yes[1]	Yes[1]
2	Sub addressing (SUB)	x		No	Yes	No	No
3	Calling Line Identification services • Calling Line Identification Presentation (CLIP) • Support of "no screening option"	x		Yes[2]	Yes No	Yes[2]	Yes[2]
4	Calling Line Identification Restriction (CLIR) • Permanent • On a per-call basis	 x x		 Yes[3] Yes[4]	 Yes No	 Yes[3] Yes[4]	 Yes[3] Yes[4]
5	Connected Line Identification Presentation (COLP)	x		Yes[5]	Yes	Yes[5]	Yes[5]
6	Connected Line Identification Restriction (COLR)[6] • Permanent • On a per-call basis	 x x		 Yes Yes	 Yes No	 Yes Yes	 Yes Yes
7	Malicious Call Identification (MCID)[7]	x		No	No	No	No
8	Call Forwarding supplementary services • Call Forwarding Unconditional (CFU) • Call Forwarding Busy (CFB) • Call Forwarding No Reply (CFNR)	 x x x		 No No No	 No No No	 No No No	 No No No
9	Call Deflection supplementary services • Partial Rerouting (CD PR)[8]	 x		 No	 No	 No	 No
10	Explicit Call Transfer (ECT)	-		No	No	No	No
11	Hold (HOLD)	-		No	No	No	No
12	Completion of Calls to Busy Subscriber (CCBS)	x		No	No	No	No
13	Conference call, add-on (CONF)			No	No	No	No
14	Three-Party (3PTY)	x		No	No	No	No
15	Closed User Group (CUG)	x		No	No	No	No

ISDN–PRI trunk

- If required ask PortfolioSupport helpdesk to get the explanation of the numbers (tiny details)
- *Notes in notes pages*

Pos.	Primary rate ISDN Trunk Supplementary Service	T	IPK	SV8100 ASPIRE IPC500	SV8300 2000IPS	Cygnus Aspire-GE	Cygnus IPKII-GE
16	Advice of Charge (AOC) [9]						
	• Charging information at the end of the call (AOC-E)	x		Yes	Yes	Yes	Yes
	• Charging information during the call (AOC-D)	x		Yes	No	Yes	Yes
	• Charging information at call set-up time (AOC-S)	x		No	No	No	No
17	User-to-User Signalling [10]						
	• Service 1 (UUS1)	x		Yes	No	Yes	Yes
	• Service 2 (UUS2)	x		No	No	No	No
	• Service 3 (UUS3)	x		No	No	No	No
18	Miscellaneous						
	• Message Waiting Indication (MWI)	-		No	No	No	No
	• Synchronisation Date/Time [11]	x		No	No	No	No

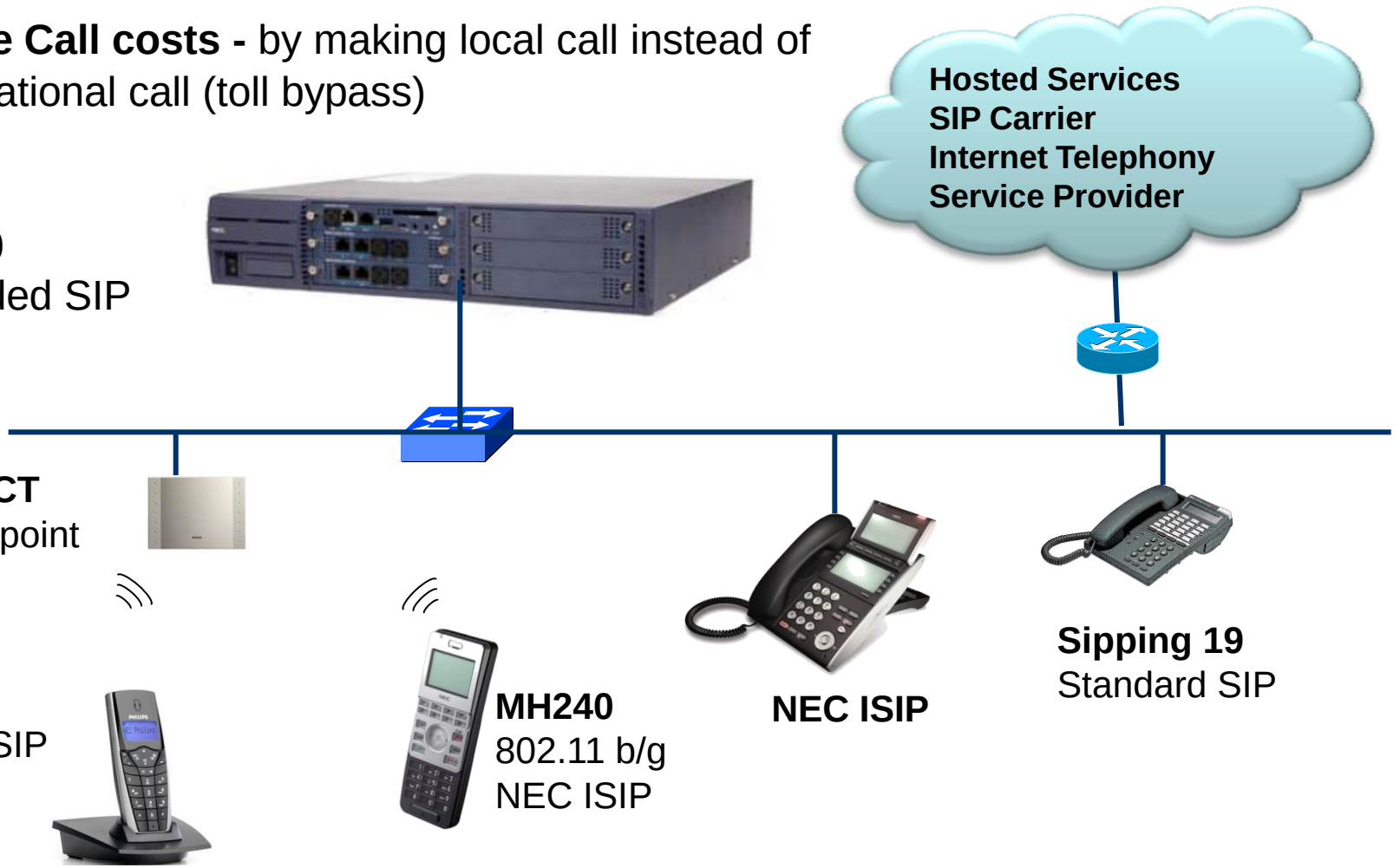
Agenda

- Extension interfaces
- **Trunk interfaces**
- Networking interfaces
- Auxilary interfaces
- System options
- System expansion

- Analogue trunk interface
- ISDN Basic Rate interface
- ISDN Primary Rate interface
- **SIP (IP) trunk interface**

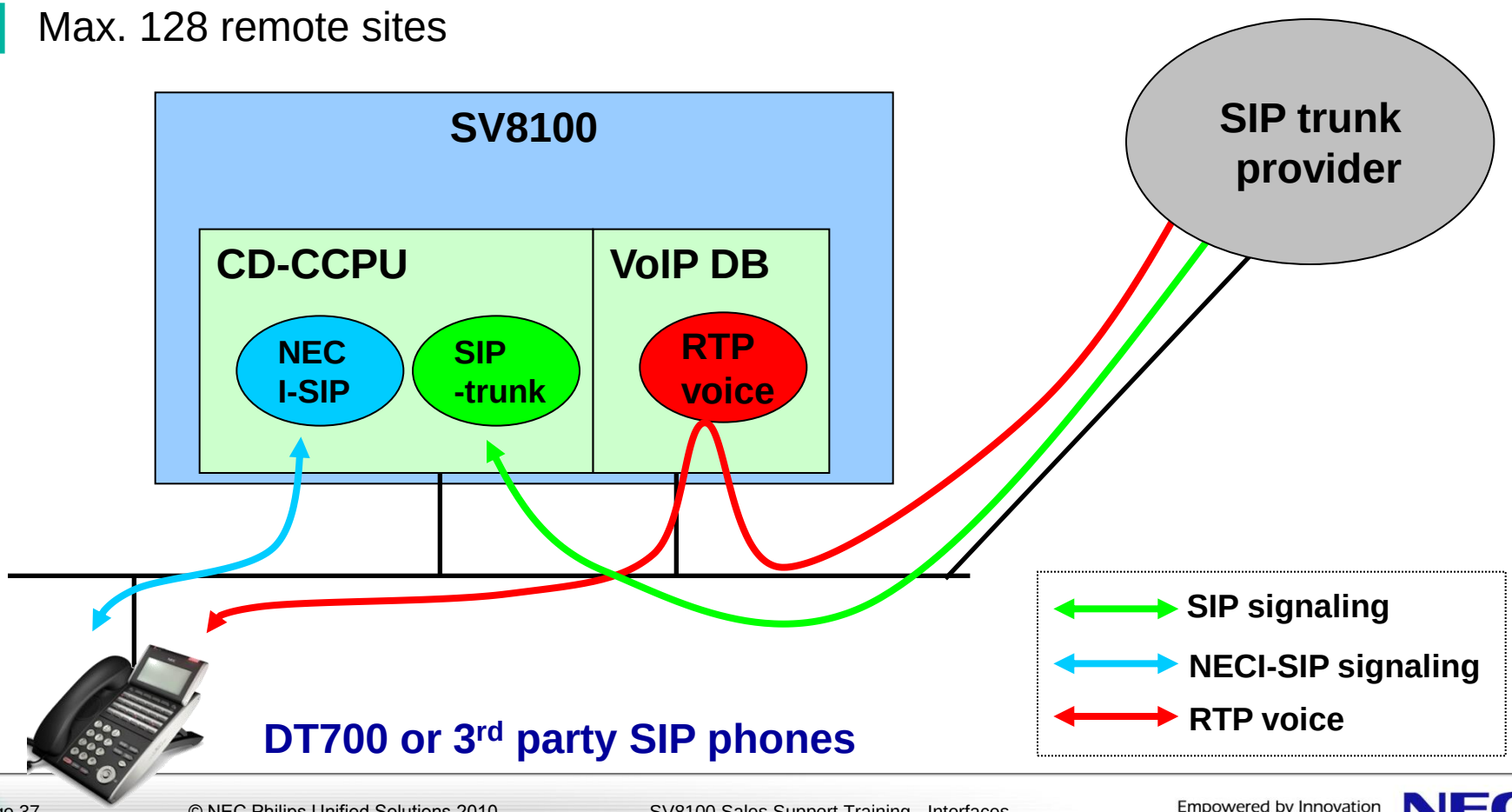
Embedded SIP server

- **Reduce Call costs -** by making local call instead of (inter)national call (toll bypass)



SIP trunk

- Occupies 2 channels (DSPs) on IPLA media gateway
- Not peer-to-peer, but IP-forwarding
- Receive incoming calls with Caller ID
- Max. 128 remote sites



SIP trunk

- Max. 200 SIP channels
- SV8100's in network with other SIP PBXs assume SIP implementations are compatible

- RFC3261 support SIP support
  - SIP stack has been updated from RFC2543 base to RFC3261 base
- RFC2543 bis04 SIP support
- SDP, RTP/RTCP, UDP, IPv4

- SIP Centrex transfer is not supported
- SIP Trunk Point to Point: Direct SIP trunk connection
- SIP Trunk Multi-connection: Proxy Server configuration

- SV8100 can register max.32 IDs with any SIP server
- SV8100 can connect any SIP server over a NAPT router by 1 static global IP address

SIP trunk

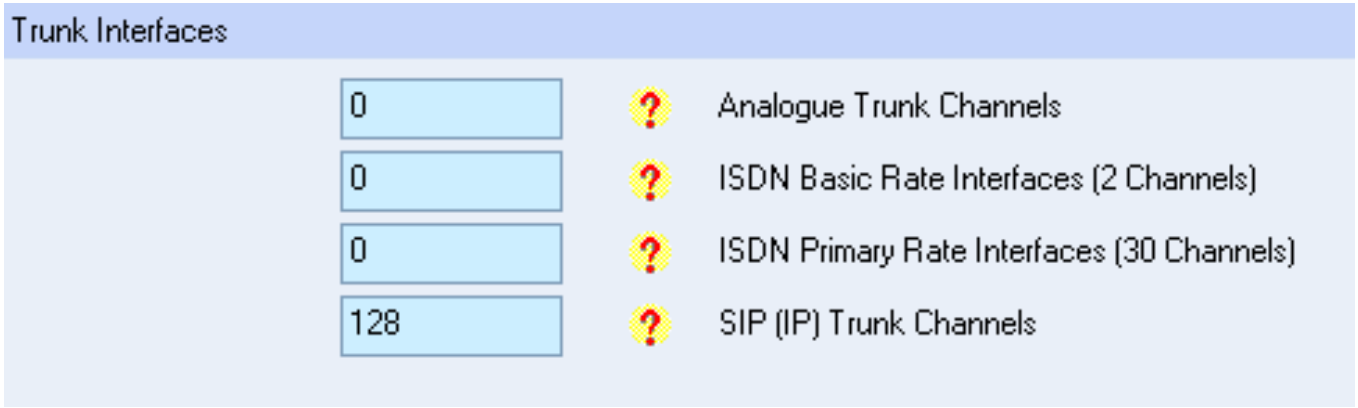
- Current List of Carriers with a Certificate of Compatibility for SV8100
- Resellers can request new compatibility testing by issuing Bluespheres "*SIP Carrier Test Request*"
- The compatibility test is a "paid for" service

SIP Carrier	Website	Country
Blueface	www.blueface.ie	Ireland
Gamma Telecom IP DirectConnect	www.gammatelecom.com	UK
Gamma Telecom IP DirectConnect (Version 3)	www.gammatelecom.com	UK
Infopact	www.infopact.nl	Netherlands
Tornado ifoon	www.ifoon.be	Belgium
Versatel	www.versatel.nl	Netherlands
Voiceflex	www.voiceflex.com	UK
Xeloq	www.xeloq.com	Netherlands
Sonofon	www.sonofon.dk	Denmark
Toplink	www.toplink.de	Germany
Global VoIP	www.globalvoipcommunication.eu	Belgium
Node4 SIPLink	www.node4.co.uk	UK
Club Communications	www.club-comms.co.uk	UK
Voicedata	www.voicedata.nl	Netherlands
Clarity Telecom	www.claritytele.com	Ireland
Spiritel	www.spiritelplc.com	UK
Teleware	www.teleware.com	UK
3StarsNet	www.3starsnet.com	Belgium
Primus	www.primustel.be	Belgium
Visual Online	www.vo.lu	Luxembourg
Gamma Version 3.1	www.gammatelecom.co.uk	UK

SIP trunk

Example: SV8100 with 128 SIP trunk channels = maximum configuration

Qty	Item	Prophix
1	CPU blade	CD-CP00-EU
1	Rack mount	CH2U Rack mount kit
1	Chassis	CHS2U-EU
128	SIP trunk licenses	lk-sys-ip-trunk1-lic
1	Media gateways with 32 channels	PZ-32IPLA
1	Enhanced memory	PZ-ME50-EU



Combinations

Daughter blade / Controlling chassis	PZ-2BRIA	PZ-4COTE	PZ-4LCA	PZ-8LCE	PZ-8DLCB
CD-LTA - Combi	Yes	Yes	–	–	–
CD-4COTA – An.trunk	–	Yes	–	–	–
CD-4LCA – An.ext.	–	–	Yes	Yes	–
CD-8LCA – An.ext.	–	–	Yes	Yes	–
CD-8DLCA – Dig.ext.	–	–	–	–	Yes
CD-16DLCA – Dig.ext.	–	–	–	–	–
CD-2BRIA – ISDN BRI	Yes	–	–	–	–

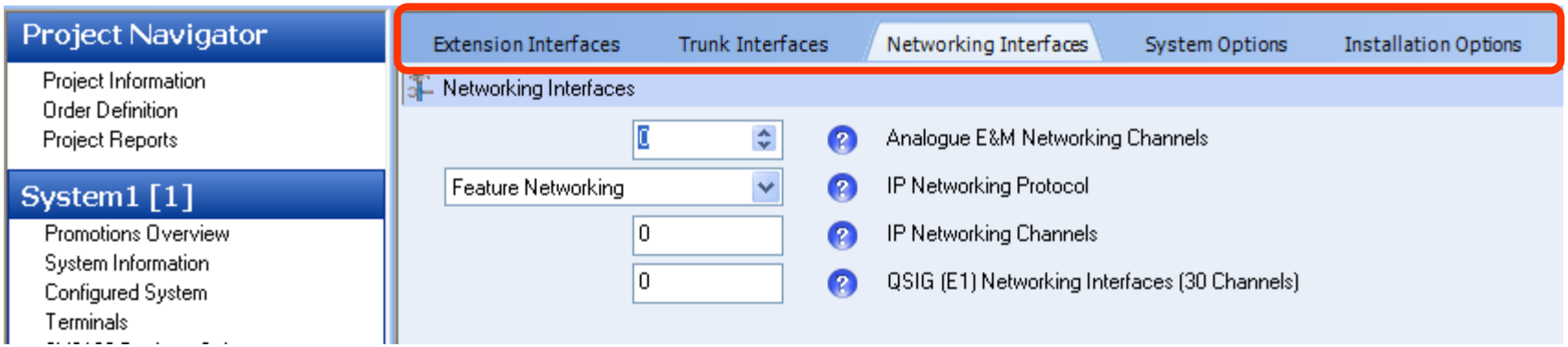
Example: CD-LTA allows for either a PZ-4COTE analog trunk daughter board or PZ-2BRIA daughter board to be installed

Agenda

- Extension interfaces
- Trunk interfaces
- **Networking interfaces**
- Auxilary interfaces
- System options
- System expansion

→

- Analogue E&M networking
- IP networking
- QSIG networking



Analogue E&M

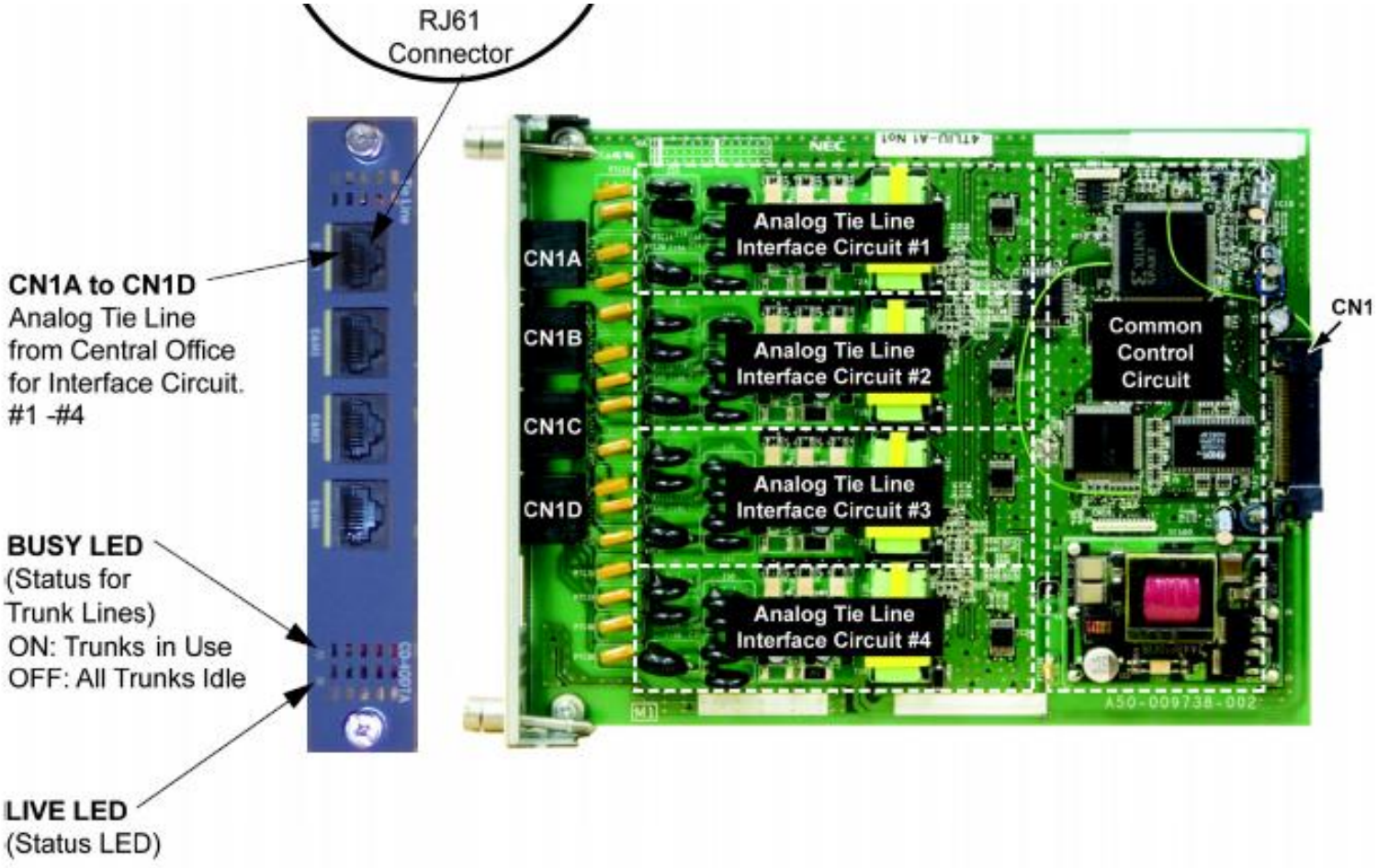
CD-4ODTB Blade

- 4 analogue E&M (Ear&Mouth) Trunk Lines
- Both 2-wire or 4-wire
- E&M connection type I and V are supported
- System programming selects type 2/4 wire setting
- Exactly the same hardware as IPC500, so it supports E&M Type 5
- Max 200 analogue E&M channels for analogue (TIE-line) networking or connection to e.g. satellite receiver

Chassis	9.5”	19”					
# SV8100s		1+cpu	1-cpu	2	3	4	Network
CD-4ODTB	2	5	6	11	17	23	50
ODT channels	8	20	24	44	68	92	200

Analogue E&M

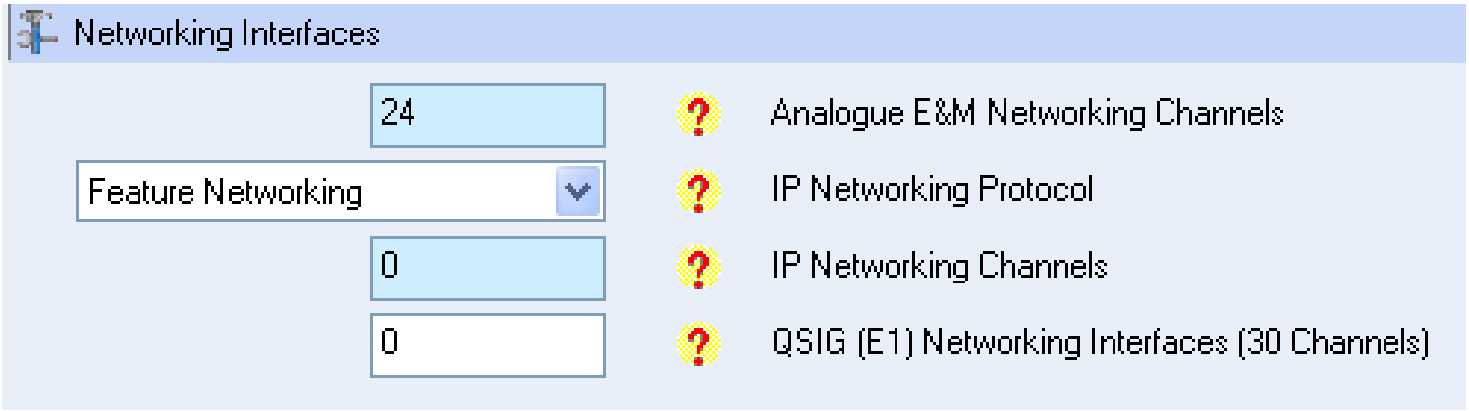
CD-4ODTB blade:



Analogue E&M

Example: SV8100 with 24 E&M channels

Qty	Item	Prophix
1	CPU blade	CD-CP00-EU
2	Rack mount	CH2U Rack mount kit
2	Chassis	CHS2U-EU
6	Analogue tie line blade (E&M)	CD-4ODTB
1	Board in EXIFU slot CPU blade	PZ-BS10
1	Board for each expansion chassis	PZ-BS11

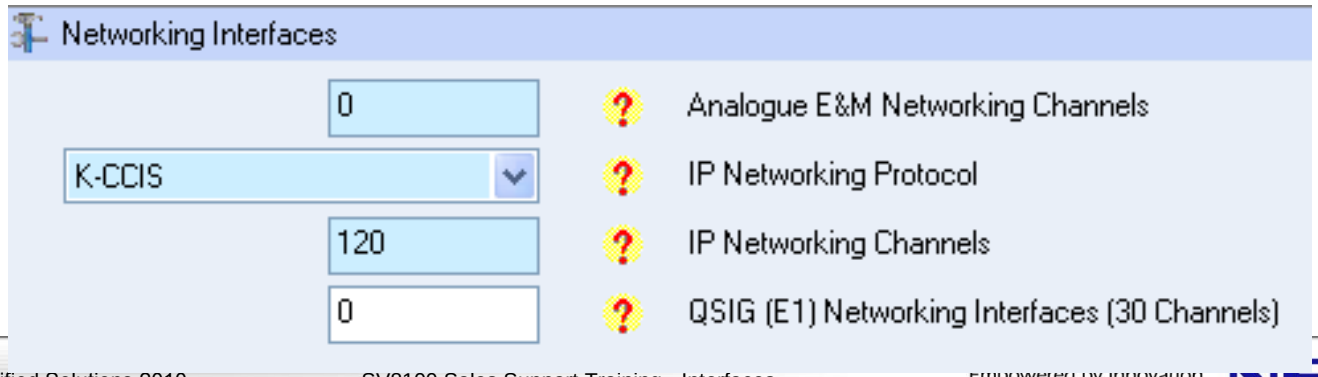


IP Networking

- Protocol: Feature Networking (default) or K-CCIS
- Max 200 channels for IP networking

- **Example:** SV8100 with120 K-CCIS channels

Qty	Item	Prophix
1	CPU blade	CD-CP00-EU
1	Rack mount	CH2U Rack mount kit
1	Chassis	CHS2U-EU
120	K-CCIS networking channels	lk-sys-kccis-ip-lic
1	Media gateway with 32 channels	PZ-32IPLA
1	Enhanced memory	PZ-ME50-EU



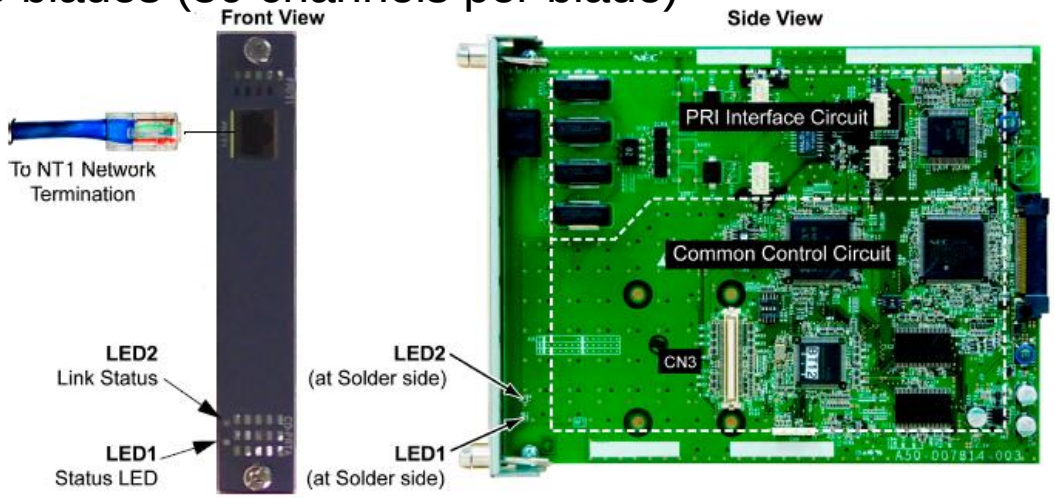
QSIG

Uses CD-PRTA Primary Rate Interface blade (E1)

- 2.048 Mbps
- 30 B-channels for data and 2 D-channels for signaling
- Can be used to connect to other PBX vendors

- Basic call + display incoming caller name & nr (if allowed by Telco)
- Fractional PRI is supported for both Q.931 and QSIG

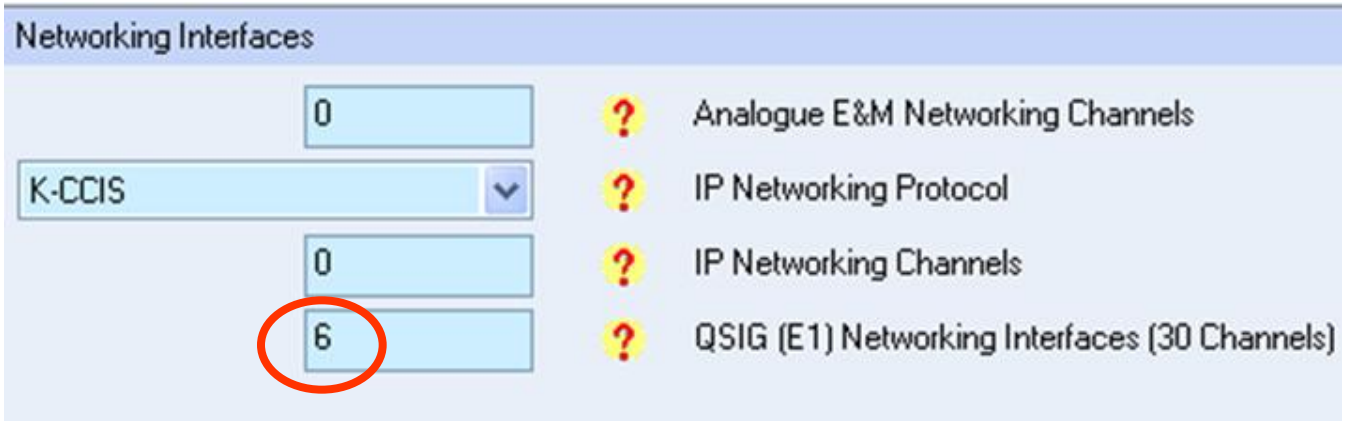
- Connects to the network via an NT1 Network Termination
- In total maximal 6 QSIG interface blades (30 channels per blade)



QSIG

Example: SV8100 with 180 QSIG channels = maximum configuration

Qty	Item	Prophix
1	CPU blade	CD-CP00-EU
2	Rack mount	CH2U Rack mount kit
2	Chassis	CHS2U-EU
1	Board in EXIFU slot of CPU blade	PZ-BS10
1	Board for each expansion chassis	PZ-BS11
1	Enhanced memory	PZ-ME50-EU
6	QSIG (E1) networking interface	CD-PRTA
1	Port licenses	lk-sys-256 port-lic

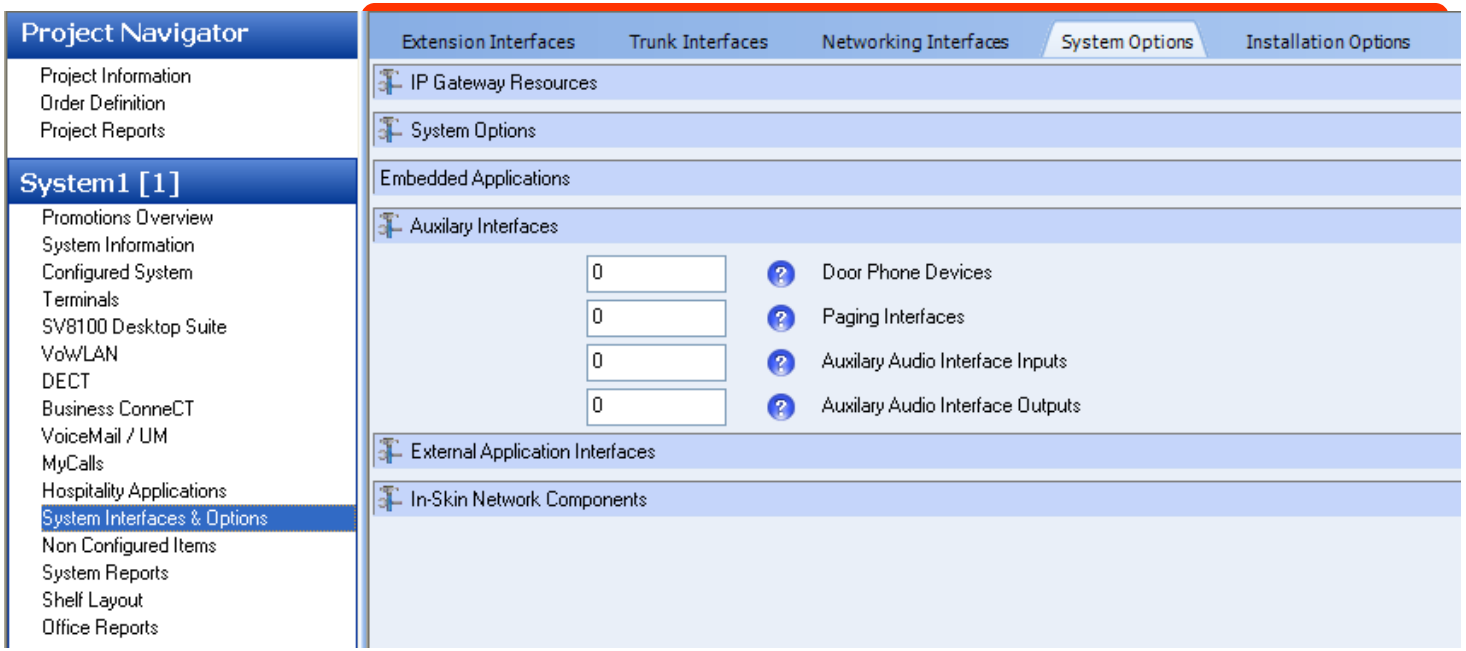


Agenda

- Extension interfaces
- Trunk interfaces
- Networking interfaces
- **System options**
- System expansion

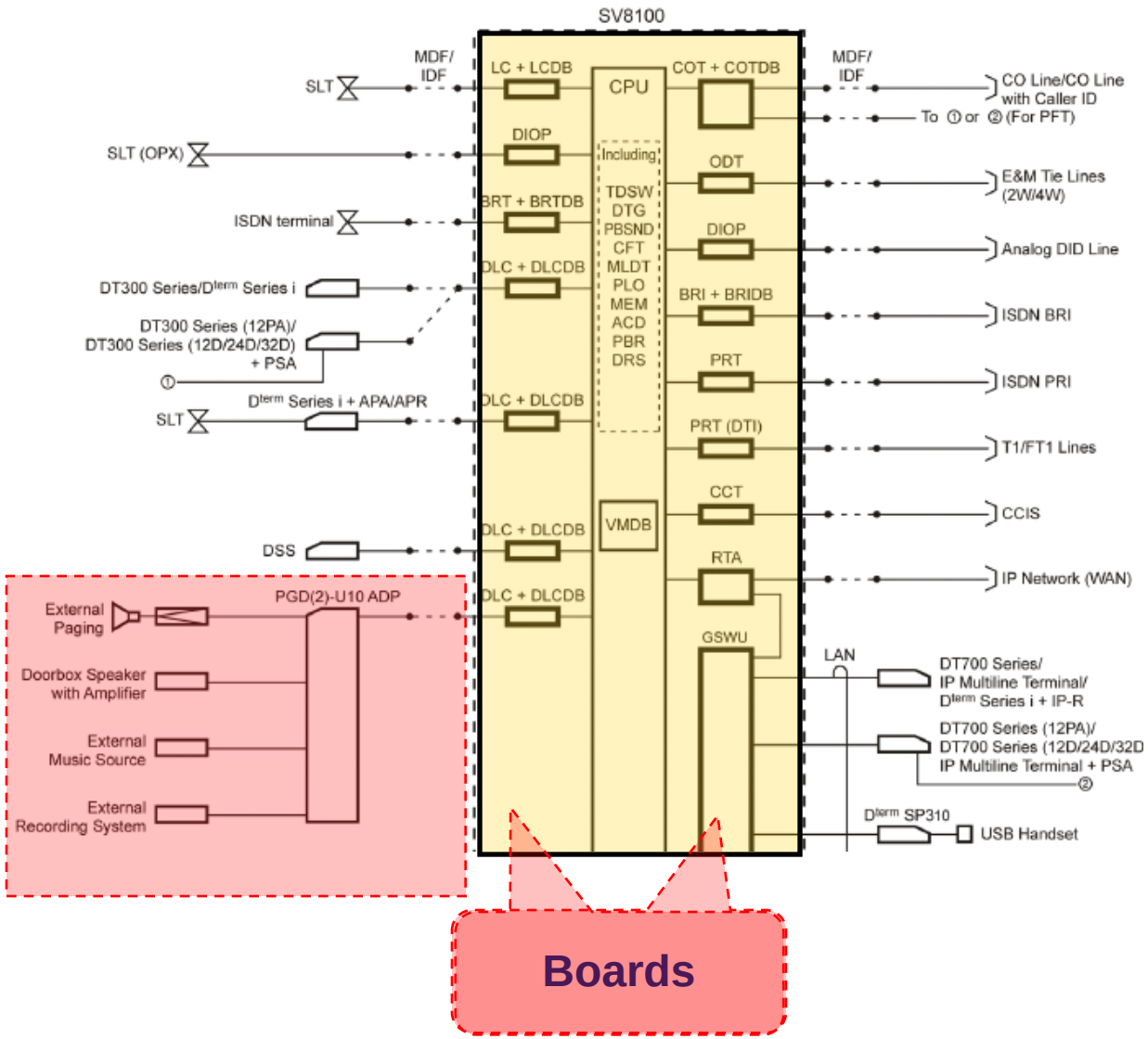
Auxilary Interfaces

- DoorPhone & Paging Interfaces
- Auxilary Audio Interface Inputs
- Auxilary Audio Interface Inputs



Overview (HW Manual)

Auxilary



Auxilary interface

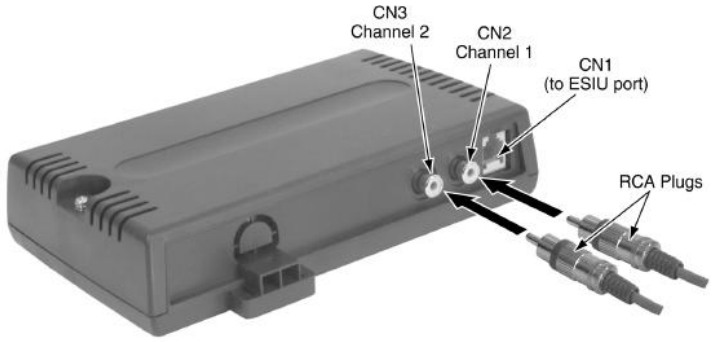
PGDAD interface box

2 Circuits for connections to external devices

To be connected to

a Digital Station port on :

- CD-8DLCA
- CD-16DLCA
- PZ-8DLCB



Auxilary interface

PGDAD interface box

2 Circuits for connections to external devices such as:

- Door boxes Max. 8 per SV8100
- External speaker Max. 8 with PGDADs (with amplifier)
  And
  1 on CD-CP00 (no amplifier)
- External music source (external MoH) Max. 96 per SV8100
- External recording system Max. 96 per SV8100
- External ringing

- SV8100 allows max. 56 PGDADs:
- 48 for ACI ports: external MoH or external recording device
- 4 for door boxes
- 4 for paging

PGDAD

Also provides general purpose relays:

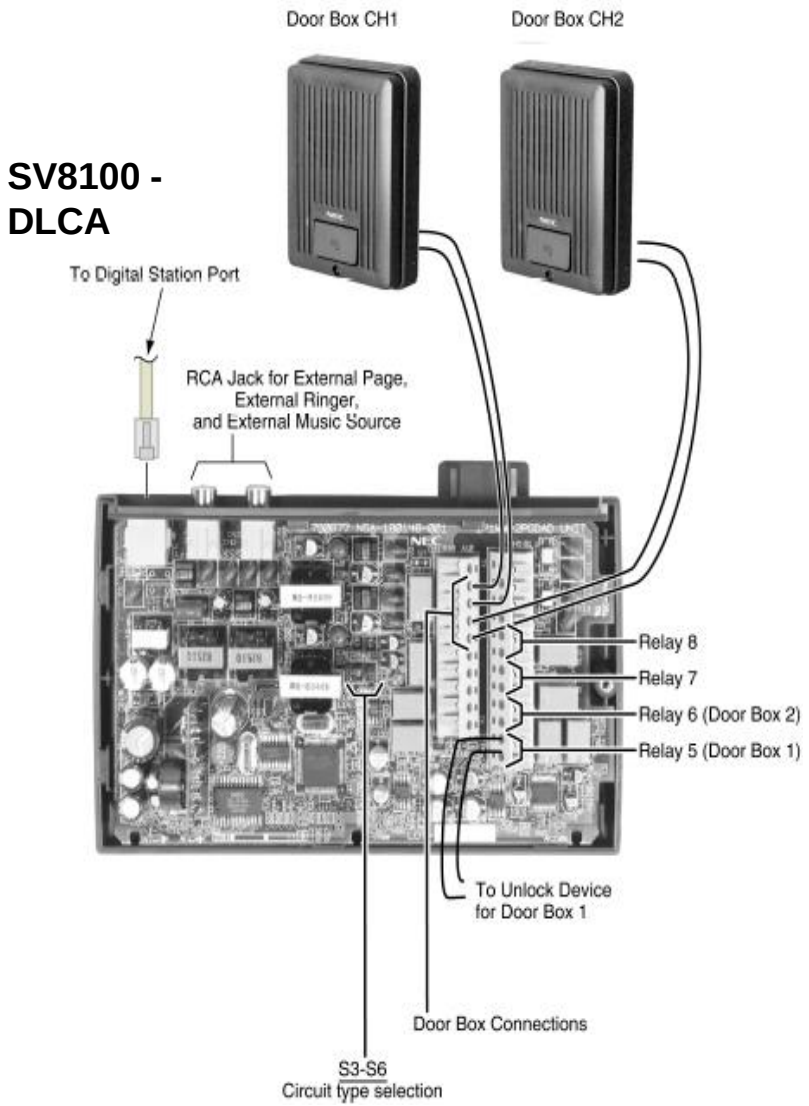
- To control external amplifier, external music source and door lock control with the use of a door box
- Maximal 8 relays (4 per PGDAD) plus 1 on CD-CP00
- Settings determine what features are used for each circuit:

	S3	S4	Function	LED Indication
Channel 1	Open	Open	Door Box	On when in use.
	Open	Short	External Paging Speaker	On when in use.
	Short	Open	External Ringer	On when in use.
	Short	Short	External Music on Hold / Recording System	On steady.
	S5	**S6**	**Function**	**LED Indication**
Channel 2	Open	Open	Door Box	On when in use.
	Open	Short	External Paging Speaker	On when in use.
	Short	Open	External Ringer	On when in use.
	Short	Short	External Music on Hold / Recording System	On steady.

PGDAD

For example, connect:

- Door box to channel 1
- Door box to channel 2

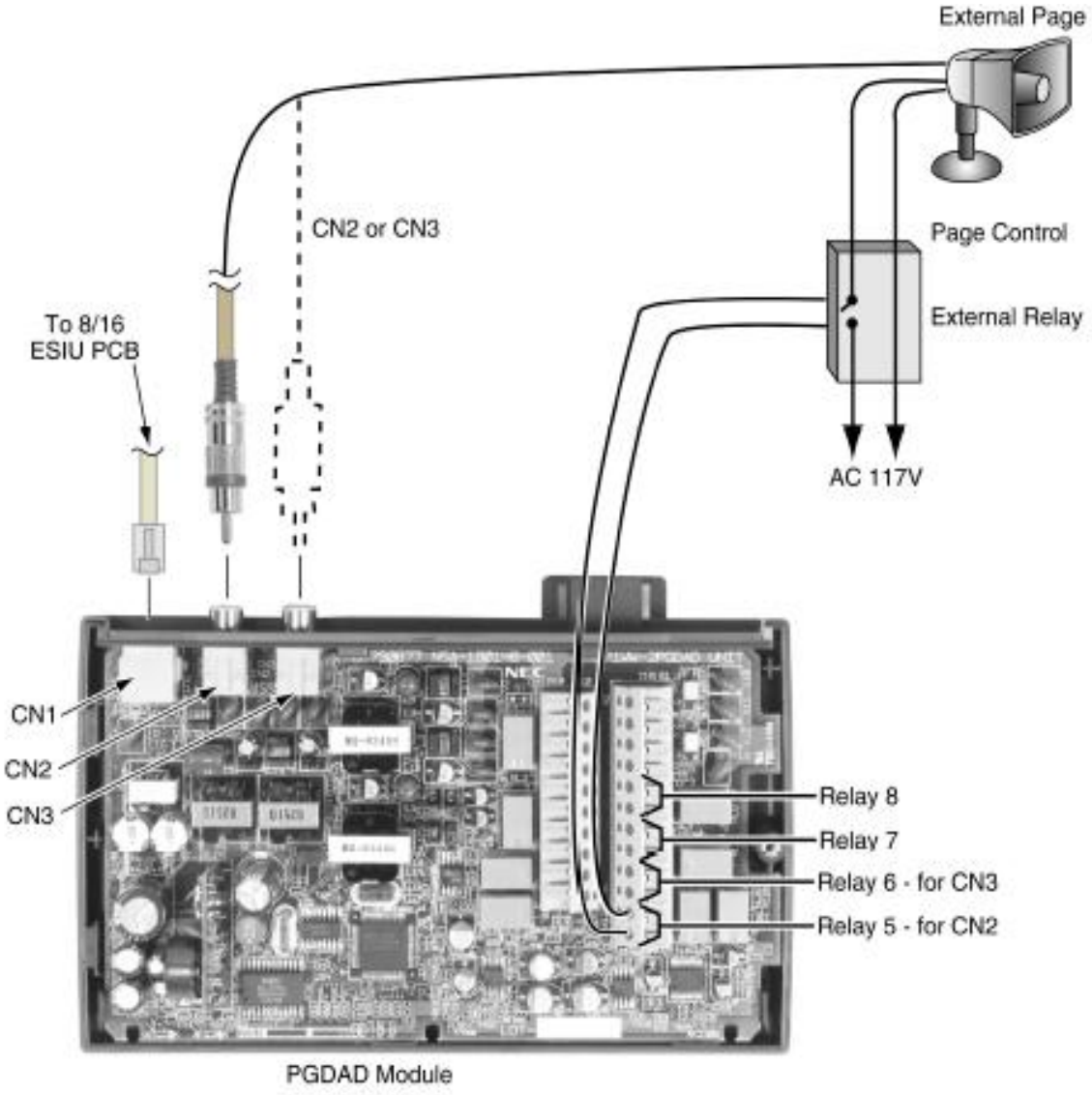


PGDAD

For example, connect:

- External pager to relays

SV8100 - DLCA

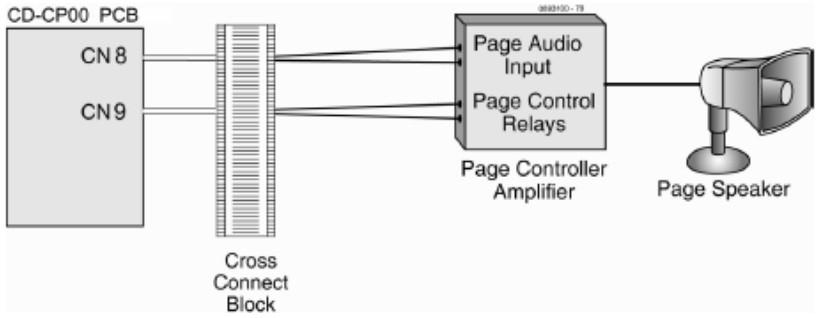


PGDAD calculation

Example: SV8100 with: 8 paging & door phone interfaces;
5 door phone devices,
4 input audio interfaces,
4 output audio interfaces

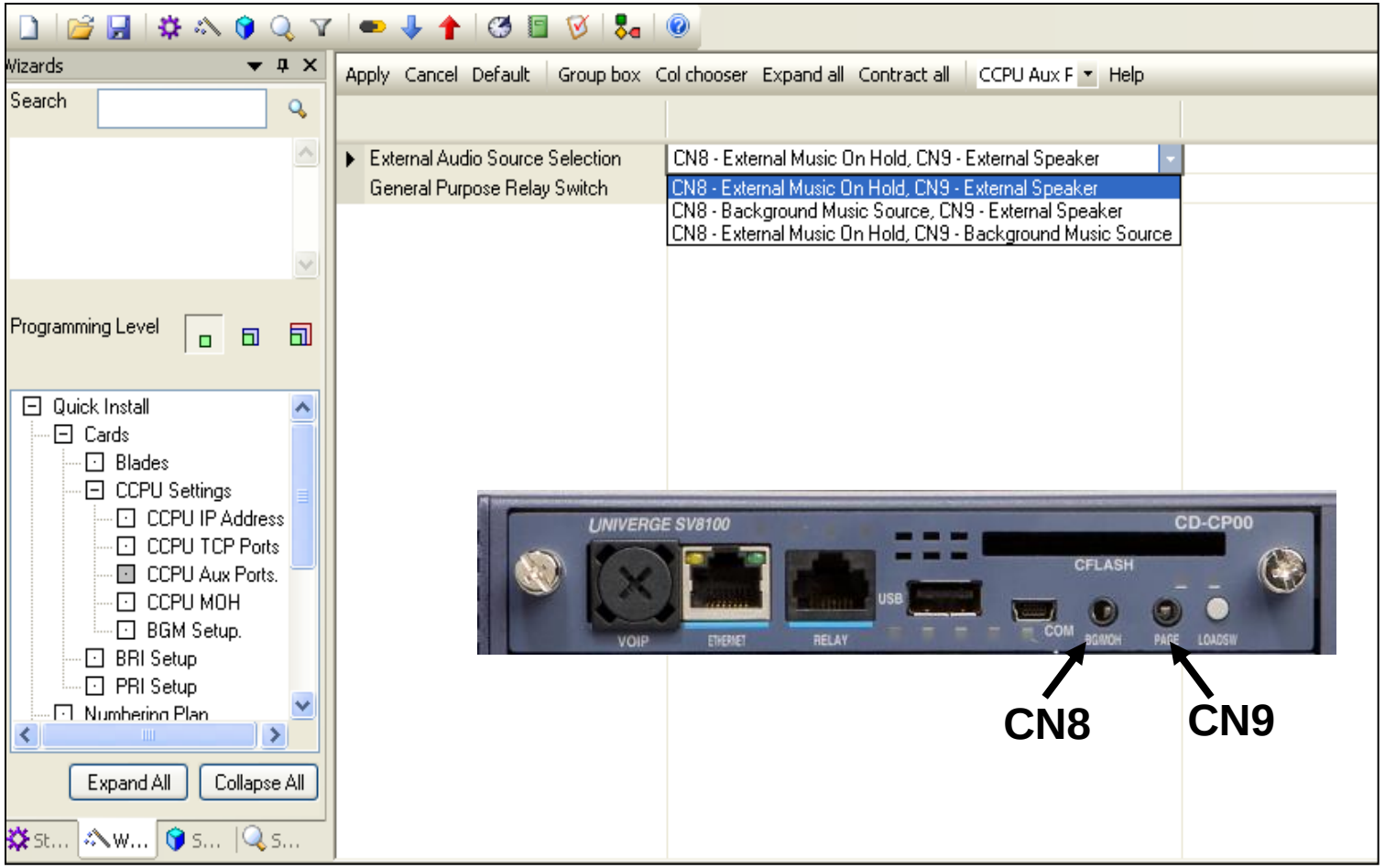
Qty	Item	Prophix
1	CPU blade	CD-CP00-EU
1	Rack mount	CH2U Rack mount kit
1	Chassis	CHS2U-EU
1	Patch panel	24 Port patch panel
1	Cable	RJ21X-6xRJ61 x 4.5 meter
1	Digital phone interface blade	CD-8DLCA
5	Door phone	DX4NA Door phone
7	2-port paging / door phone adapter	2PGDAD

**8 / 2 + ((4-1)+(4-1))/2 =
4+3 =7**



Auxilary interfaces

Auxilary ports of CPU blade can be programmed with PCPro



Agenda

- Installation options
- **System options**
- Networking interfaces
- Trunk interfaces
- Extension interfaces
- System expansion

- IP gateway resources
- System options
- Embedded applications
- Auxilary interfaces
- **External application interfaces**
- In-skin network components

Application interfaces

- CTI Interfaces:
  - See the Sales Support presentation
    ” SV8100 Sales Support Training - Open Interfaces”

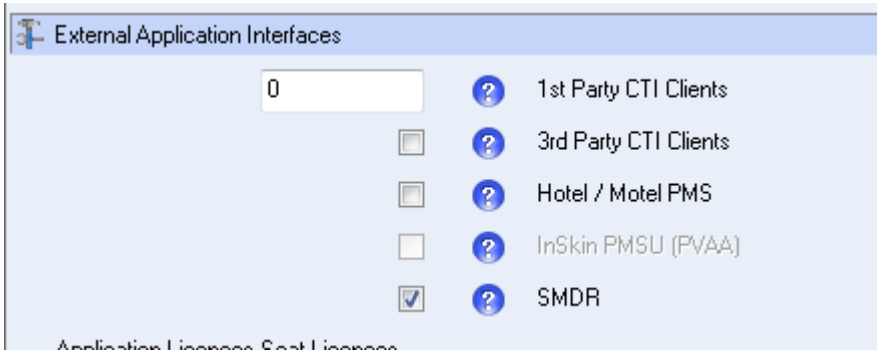
- Hotel/Motel PMS
  Enable this checkbox when you want to use the embedded Hotel/Motel features, or when you want to integrate a Property Management System with the SV8100.

- FIAS PMS Interface Adapter. This is an hardware device that translates the proprietary PMS messages into the FIAS (Fidelio) protocol

- To output SMDR records (call records) for call reporting or accounting purposes

Prophix:

- Default = SMDR (f.o.c.)
- MyCalls and Desktop Suite will automatically enable the required licenses



Agenda

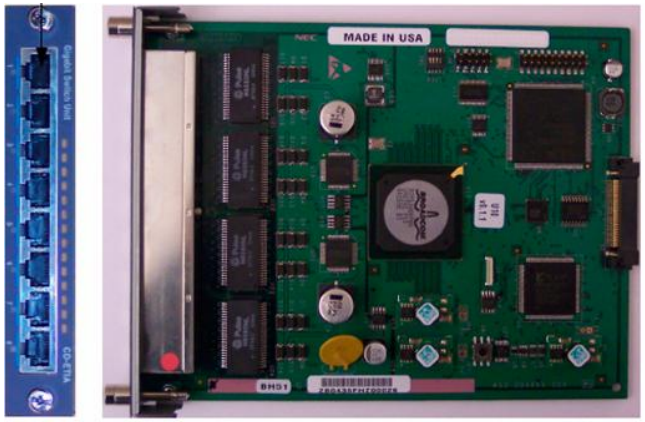
- Installation options
- **System options**
- Networking interfaces
- Trunk interfaces
- Extension interfaces
- System expansion

- IP gateway resources
- System options
- Embedded applications
- Auxilary interfaces
- External application interfaces
- **In-skin network components**

Network components

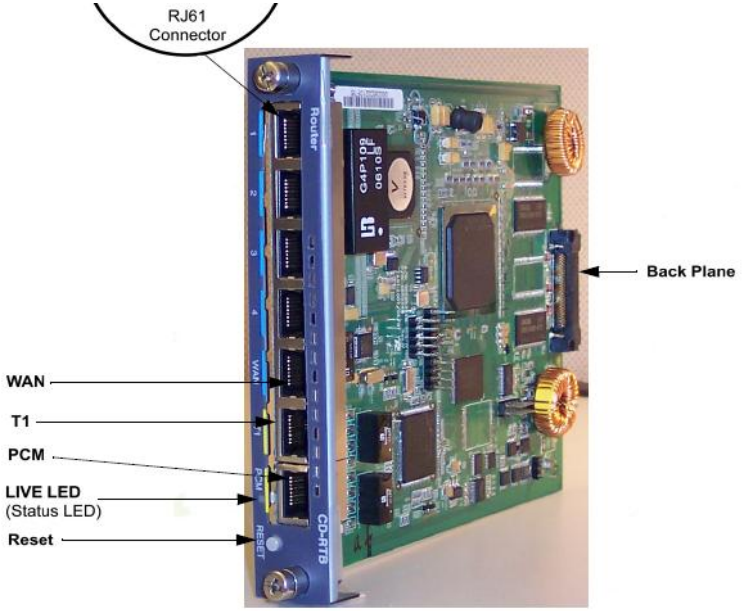
8-port Ethernet in-skin switch:

- CD-ETIA
- Gigabit ethernet managed switch
- Max 3 switch blades per 19” chassis
- Max 64 blades in total
- Gigabit PoE (802.3af)



4-port Ethernet in-skin router:

- CD-RTB
- Max 3 router blades per 19” chassis
  (wrong in hw manual)
- Max 128 blades in 1 network
- E.g. to include in home worker solution (1 supplier)



NB. Blades are powered by SV8100:
Max. 2 blades per 9.5” chassis

CD-ETIA

Ethernet ports:

- 8 Gigabit Ethernet (10 / 100 / 1000 auto negotiating) ports
- Status LEDs indicating link, speed and activity
- 8-port PoE (802.3af) with dynamic PoE control
- Allows setting proper PoE classifications for each port to stay within the system power budget)
- Auto-MDI/MDIX – automatically detects and corrects crossover cables
- Provide all LAN / power functions for IP telephony (DT7x0)

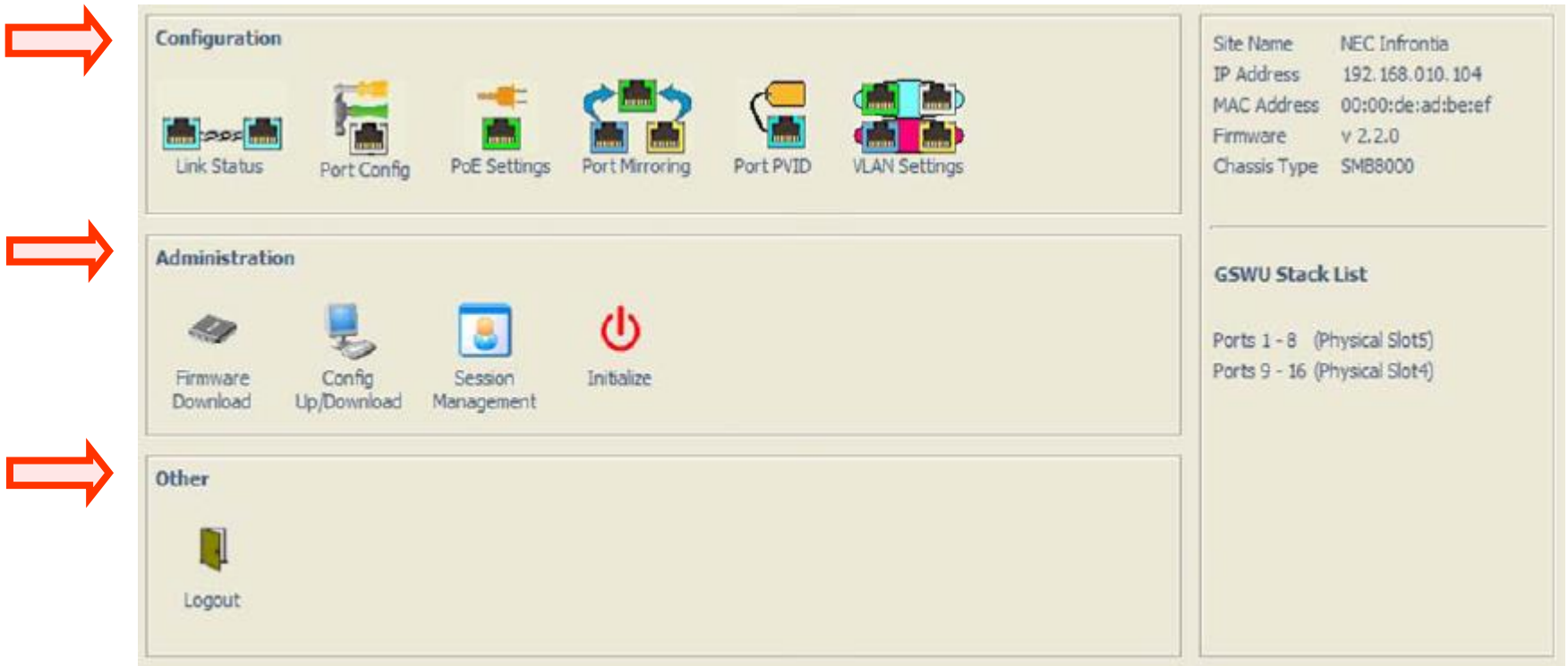
Layer 2 switch functions:

- 802.1Q (VLAN bridging)
- Independent VLAN learning support
- 802.1P (priority queuing)
- Port mirroring
- 802.3x flow control

CD-ETIA – blade mgt

User can log into CD-ETIA blade web-interface:

- Multi-unit stacking: 3 blades in 1 SV8100 managed from same UI
- These 3 blades can be managed via 1 IP address showing all 24 ports
- Web based utility for remote mgt and upgrades
- Configuration upload and download, firmware upgrade



CD-ETIA

- Up to 12 cards can be placed in 4 chassis stack
- Card can be addressed individually or work in multi-stack environment
- Take into consideration loss of ports due to uplinking

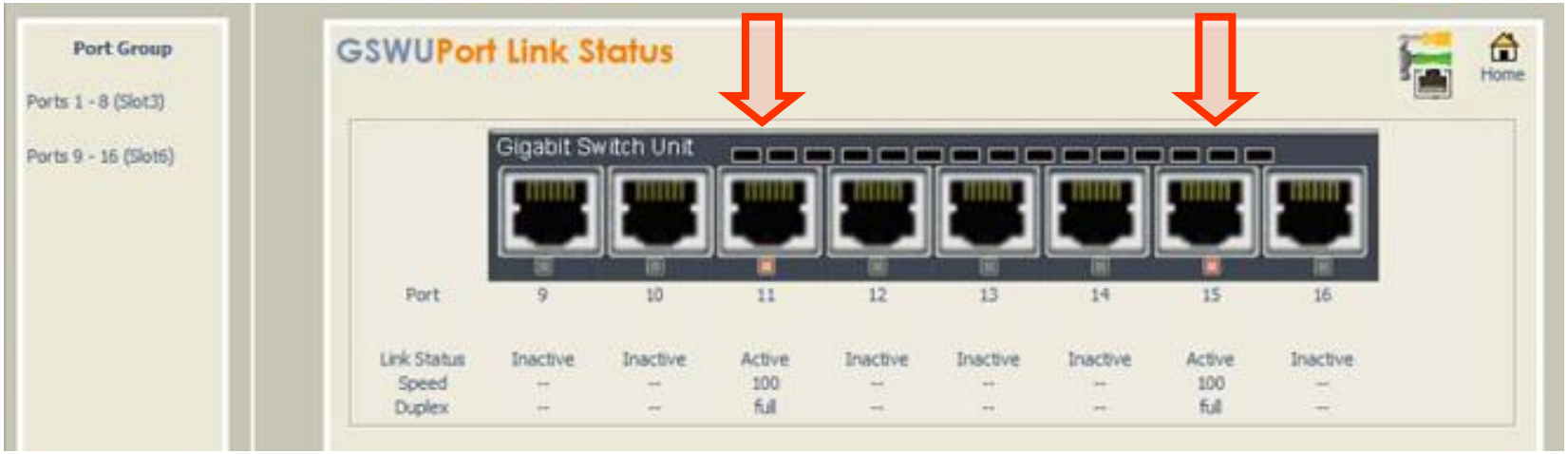
- By default 1 blade is Main and all others are Add-ons
- If left as add-ons all cards after the 3rd will be unmanaged
- This can be corrected by setting relevant cards as Main

Example of 2 cards in a stack:

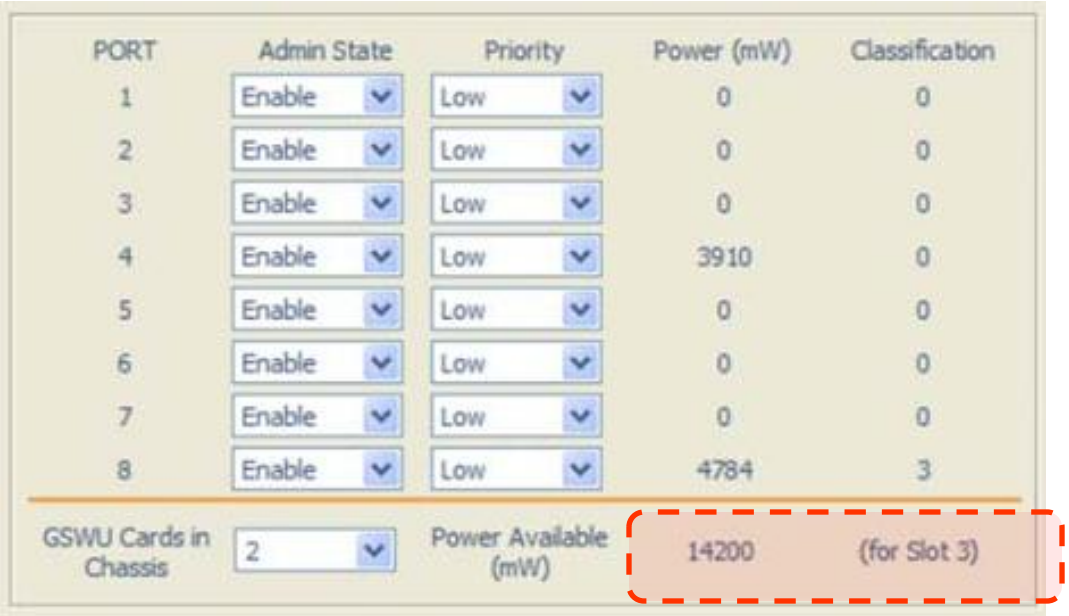
- Main card in slot 5
- Add-on card in slot 4
- Managed by IP address of card in slot 5

CD-ETIA – ports

Port link status: Two slot6 ports in example are active



- Power over Ethernet:



PORT	Admin State	Priority	Power (mW)	Classification
1	Enable	Low	0	0
2	Enable	Low	0	0
3	Enable	Low	0	0
4	Enable	Low	3910	0
5	Enable	Low	0	0
6	Enable	Low	0	0
7	Enable	Low	0	0
8	Enable	Low	4784	3

GSWU Cards in Chassis: 2

Power Available (mW): 14200 (for Slot 3)

IEEE802.3af	Minimum	Maximum
Class 4	–	–
Class 3	6.49W	12.95W
Class 2	3.84W	6.49W
Class 1	0.44W	3.84W
Class 0	0.44W	12.95W

Max power per port

IEEE802.3af	Minimum	Maximum
Class 4	0.44W	12.95W
Class 3	6.49W	12.95W
Class 2	3.84W	6.49W
Class 1	0.44W	3.84W
Class 0	0.44W	12.95W

IEEE802.3af power classifications

ETIA – PoE Settings

An example using NEC equipment: -

A DT710 or DT730 is a class 2 device, this will take 7000mW from the total available when plugged in.

For a single ETIA in a cabinet, this 90,000mW available so can power up to 8 DT710 or DT730s.
For two cards, each will be allocated 45,000mW, so can power up to 6 DT710'/DT730's each.
For three cards, each will be allocated 30,000mW, so can power up to 4 DT710'/DT730's each.

ETIA Cards in Chassis	Supported IP MLTs (DT710's/DT730's) per card	Supported IP MLTs (DT710's/DT730's) per chassis
1	8	8
2	6	12
3	4	12

ETIA – PoE Settings

An example using NEC equipment: -

A DT750 is a class 3 device, this will take 15400mW from the total available when plugged in.

For a single ETIA in a cabinet, this 90,000mW available so can power up to 5 DT750's.
For two cards, each will be allocated 45,000mW, so can power up to 2 DT750's each.
For three cards, each will be allocated 30,000mW, so can power up to 1 IDT750's each.

ETIA Cards in Chassis	Supported IP MLTs (DT750's) per card	Supported IP MLTs (DT750's) per chassis
1	5	5
2	2	4
3	1	3

An IP DECT Access Point (DAP - AP200S) acts a Class 0 device taking 15,400mW from the total available when plugged in.

* Please take into consideration loss of ports due to uplinking

CD-ETIA – PoE

Power over Ethernet:

- Dependant on # blades / ports in chassis and equipment type plugged into each port, power requirements put on CD-ETIA may not be possible
- If so, ETIA will disable ports to allow required devices to work
- Devices plugged into disabled ports will no longer receive PoE
- CD-ETIA simultaneously uses 2 priority methods:
- Priority class method enables port PoE priority class assignments of critical (highest prio), high, low (default)
- Port-number priority method gives priority to lower-nr port

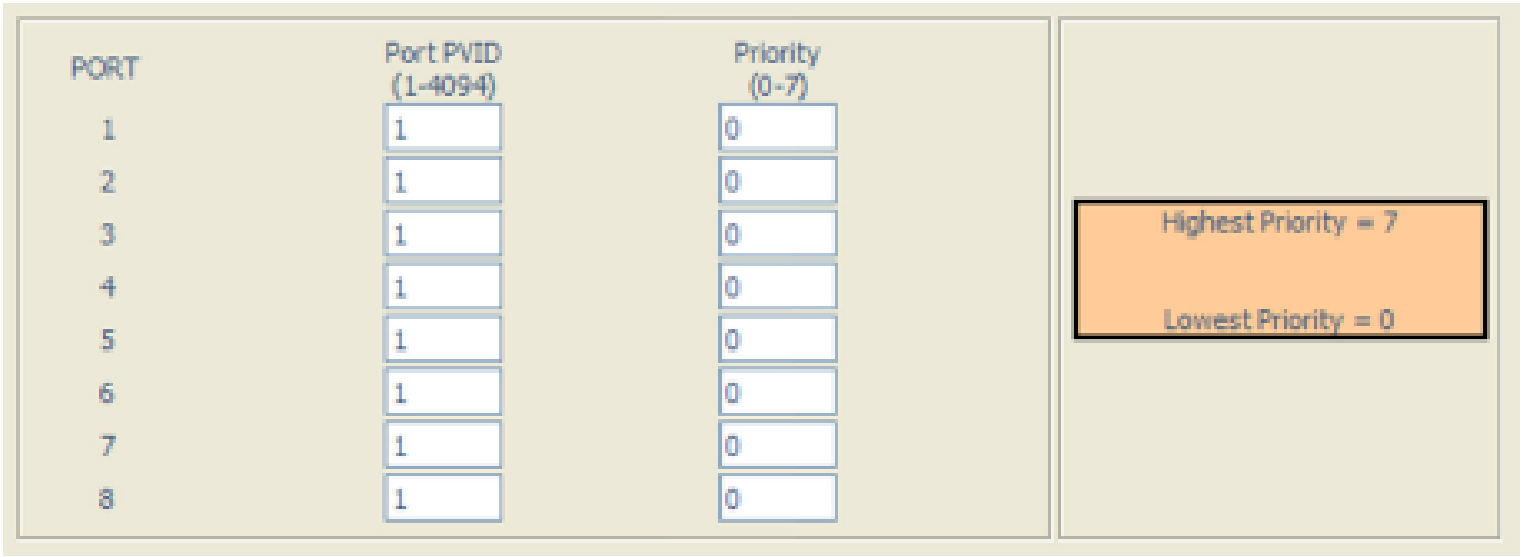
CD-ETIA – VLAN

View and configure VLAN settings per port:

- VLAN membership can be set per port
- Typically, all VoIP devices are placed in the same VLAN while data devices are placed in a different VLAN
- CD-ETIA can be used to connect to other devices that have been configured to use VLANs

CD-ETIA – Port PVID

- VLAN ID can be assigned to untagged or tagged packet
- Priorities can be assigned to VLAN ID ingress ports

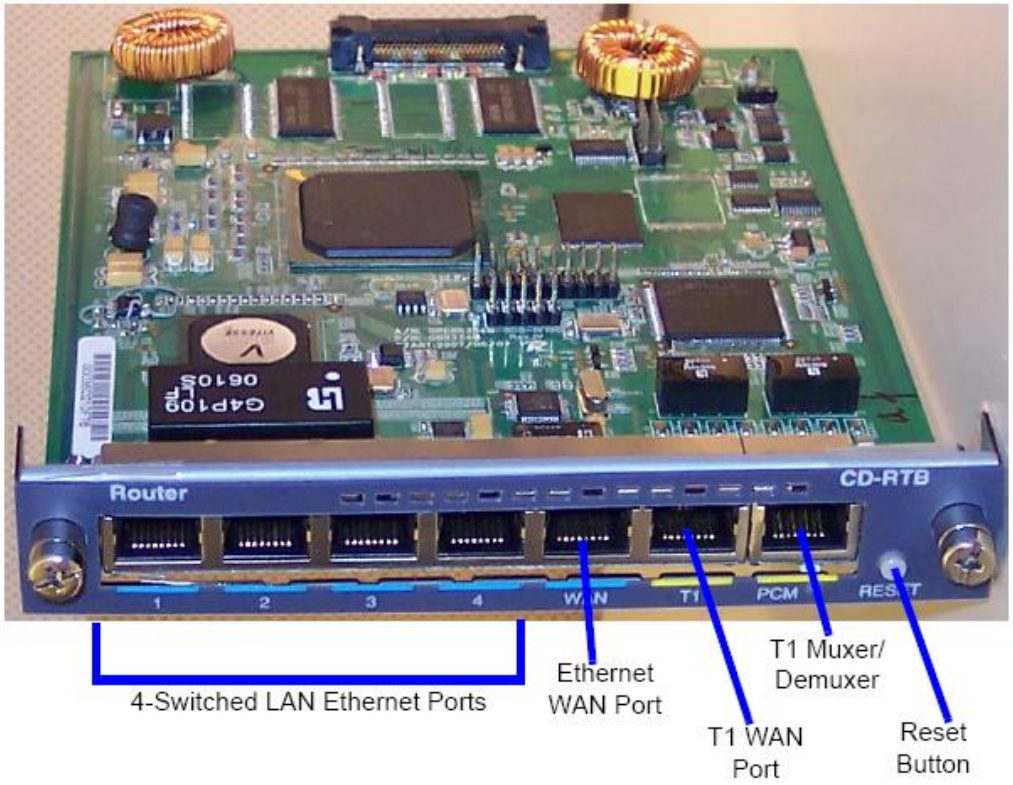


CD-ETIA – Port mirroring

- Port mirroring monitors and mirrors network traffic by forwarding incoming and outgoing packets from one port to another port
- Port Mirroring can be used as debugging tool
- Some customers use it to forward speech to record calls

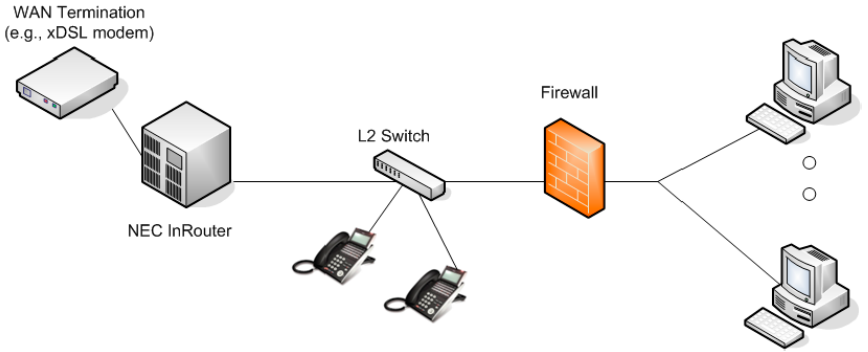
CD-RTB Router

- 4-switched LAN Ethernet ports
- In-skin solution: Plugged into universal slot of SV8100
- WAN Ethernet port
- WAN T1 port
- Edgemarc 4300T



CD-RTB – Ports

- 10Base-T / 100Base-TX (10Mbps / 100Mbps)
- Power over Ethernet
- No SV8100 port consumption
- Stateful packet inspection firewall
- VPN based security
- Easy remote monitoring and troubleshooting, e.g. detailed MOS statistics
- Management: HTTP, HTTPS, SSH, Telnet, SNMPv1 and Vxx



CD-RTB – Features

- Configurable on each Port:
  Auto Negotiation full / half duplex
- MDI / MDI-X auto crossover
- Tag VLAN based on IEEE802.1Q
- Port-base VLAN
- Port mirroring
- PPPoE client
- Multi-protocol bridge
- RIP / RIPv2 / OSPFv2 / BGP4
- Policy routing
- DHCP
- NAT / NAPT
- SIP-NAT
- IPnP NAT traversal
- DNS Proxy
- NTP / SNTP (simple nw time prot.)
- QoS (PQ, CBQ, LLQ, Shaping)
- VPN (IPSec / IKE)
- AAA (Login)
- Firewall (static / dynamic filter)
- SNMP version 1
- Syslog
- TFTP Client
- Backpressure / flow control feature

- Auto MAC Address Learning / Migrating / Aging
- Learn Maximum 8k MAC Addresses
- Store and Forward Switching Method
- Max. 100m transmission distance by CAT-5 cable
- 2 Status LEDs

Data sheet

Interfaces	
T1 WAN:	1
Framing:	ESF/D4
Line coding:	B8ZS/AMI
Line build out:	0,7.5,15db
Connector:	RJ45
PPP:	Yes
Frame relay:	Yes
HDLC/cHDLC:	Yes
Ethernet WAN:	1
Auto-sensing:	Yes
10/100 Mbps:	Yes
Duplex:	Full or half
Ethernet LAN:	4
10/100 Mbps:	Yes
Duplex	Full or half
Managed VLAN:	Yes
Loop start:	Yes
USB ports:	2
Console Connector:	DB9 Male
Security	
SPI firewall	Yes
VoIP protocol aware firewall	Yes
Dynamic network address translation	Yes
Static network address translation	Yes
Port address translation	Yes
Denial of Service protection:	
• SYN flood	Yes
• UDP flood	Yes
• ICMP flood	Yes
• Fragment flood	Yes
IPSec	Yes
IKE key management	Yes
3DES	Yes
AES	Yes
SHA-1	Yes
MD-5	Yes
IPSec Hardware acceleration	Yes
Number of tunnels	Up to 15
IPSec	Yes

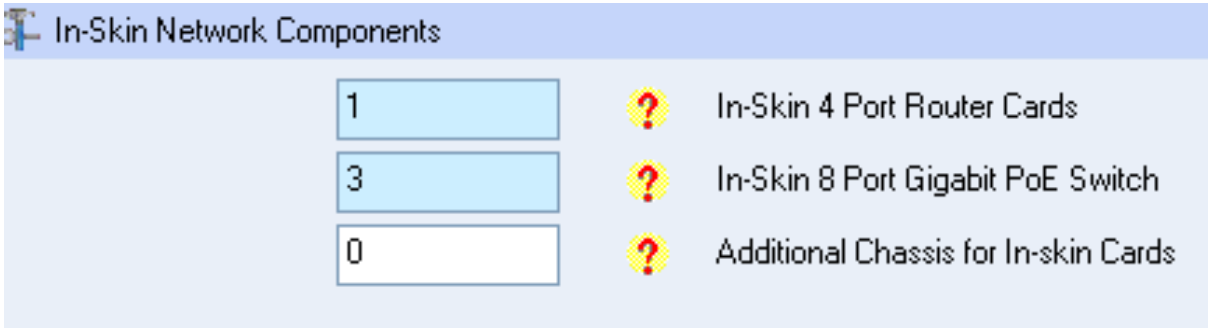
Passive Call Quality Monitoring	
Per call statistics	Yes
LAN side measurements	Yes
WAN side measurements	Yes
Mean Opinion Score (MOS)	Yes
Bad MOS score alarms	Yes
Below threshold MOS counters	Yes
MOS degradation due to network impairments	Yes
Jitter	Yes
Packet loss	Yes
Consecutive lost packets	Yes
Total # of RTP packets received	Yes
Sum of received and expected packets	Yes
Out of sequence packets	Yes
Average packet loss burst length	Yes
Estimated jitter buffer delay	Yes
Estimated jitter buffer packet discard rate	Yes
Probability of degradation due to:	
• LAN congestion	Yes
• Router congestion	Yes
Traffic Management/QoS/Routing	
Class-based queuing	Yes
Prioritization on IP	Yes
Prioritization on VoIP Protocol	Yes
Traffic shaping	Yes
Guaranteed bandwidth	Yes
Upstream bandwidth management	Yes
Downstream bandwidth management	Yes
VoIP call admission control	Yes
Diffserv marking	Yes
Diffserv policing	Yes
IP routing	Yes
Secondary address/sub-interface support	Yes
VLAN - 802.1Q	Up to 16
System Services	
DHCP server	Yes
Local TFTP/FTP server	Yes
Automatic TFTP/FTP download on restart	Yes
Certification	
UL, CE, FCC Part 68 & 15, Industry Canada	Yes

Network components

Example: SV8100 with 3 Ethernet Switches and 1 Router

Qty	Item	Prophix
1	CPU blade	CD-CP00-EU
1	Board in EXIFU slot CPU blade	PZ-BS10
1	Board for each expansion chassis	PZ-BS11
2	Rack mount	CH2U Rack mount kit
2	Chassis	CHS2U-EU
3	Switch	CD-ETIA
1	Router	CD-RTB

Extra chassis required



Summary - names

Main blade daughter board	CD PZ
Main Processor Unit	CD-CP00
System expansion I/F for 1st Base chassis	PZ-BS10
System expansion I/F for 2nd, 3rd, 4th chassis	PZ-BS11
16 channel Voice mail	PZ-VM21
Memory expansion	PZ-ME50
32 VoIP media gateway 64 VoIP media gateway 128 VoIP media gateway	PZ-32IPLA PZ-64IPLA PZ-128IPLA
Digital telephone interface, 8 ports	CD-8DLCA
Digital telephone interface, 16 ports	CD-16DLCA
Digital telephone interface, 8 ports	PZ-8DLCB
Analog Trunk interface, Loop Start, 4 ports	CD-4COTA
Analog Trunk interface, Loop Start, 4 ports	PZ-4COTE

Summary - names

Main blade board	daughter CD / PZ
SLT interface with MW, 4 and 8 ports	CD-4LCA
4/8 SLT interface with MW	PZ-4LCA / PZ-8LCE
Dterm (8) + SLT (2) interface	CD-LTA
SLT (2) interface	CD-LTB
ISDN Basic rate interface (2B+D)	CD-2BRIA
2 Basic rate (on 2BRIA)	PZ-2BRIA
ISDN PRI E1 trunk interface (30B+D)	CD-PRTA
DID/OPX interface, 4 ports	CD-4DIOPA
E&M trunk interface , 4 ports	CD-4ODTA
Switch, Gigabit, in-skin, layer 3, POE	CD-ETIA
Router, in-skin	CD-RTB

Empowered by Innovation