

SV8100 - System

Pre-Sales Support
UNIVERGE SV8100
Release 5

Doc. Version 5.00

Agenda

- System Hardware
- Port Calculation
- Boundaries
- Licenses

Page 2



System hardware

Always present

- 1x CHS2U-EU
 - 6 slot chassis, 19 inch, 2U, power cord
- 1x CD-CP00-EU
 - Processor blade

Default enabled in Prophix:

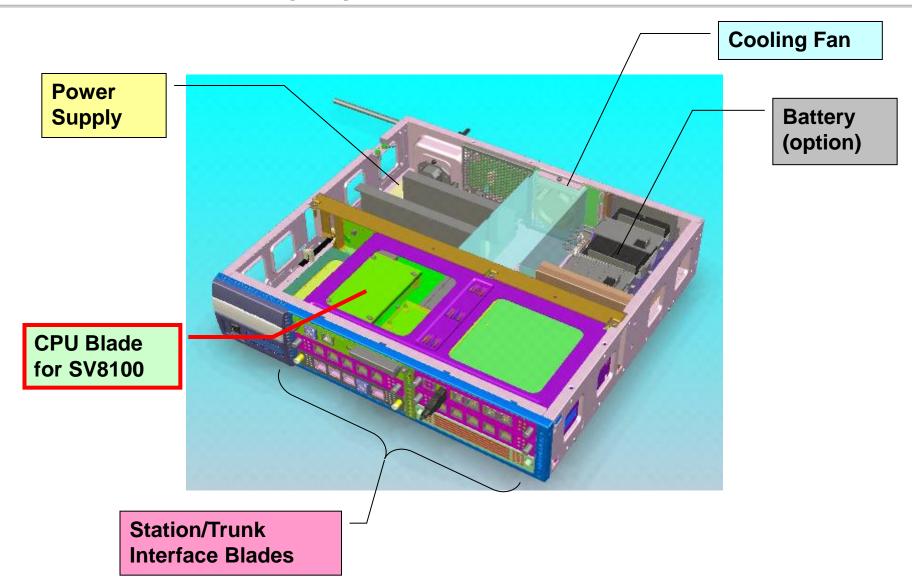
- 1x CH2U Rack mount kit
 - Single rack mount chassis
- 1x lk-sys-SMDR license
 - SMDR License
 (Station Message Detail Recording for call accounting purposes)



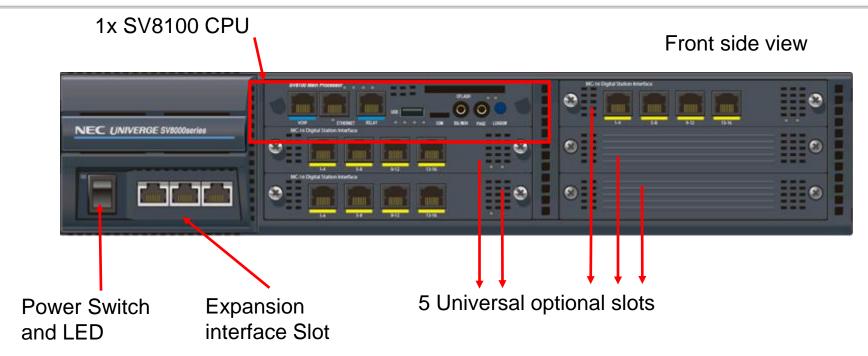


19-inch Chassis (2U)

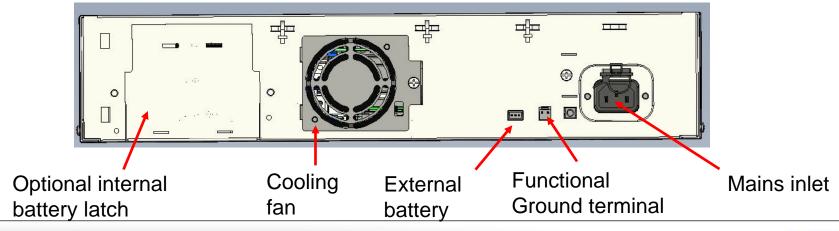
Hardware



Chassis Hardware







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Chassis Hardware

- 19 inch
- 2U rack system
- Blank panels for empty slots



Accent Color:

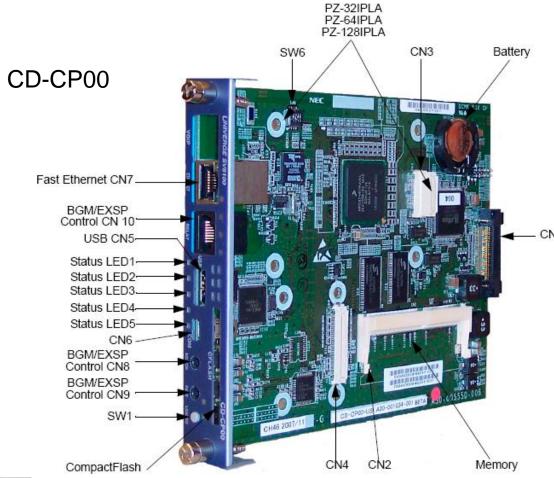
- Yellow = Trunk Lines → Protection for lightning surge
- Blue = Extension Lines → No protection for lightning

View in PCPro



Processor blade

Hardware





Processor blade

- Software is loaded into CD-CP00 memory and can be upgraded
- Call control server
- RTP forwarding
- Built-in Device Registration Server (DRS) and SIP Server

Connection for <u>daughter boards</u> with:

- Media gateway
- Extended memory
- Voicemail server (InMail)

Embedded Conference bridge server:

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- 64 conference ports
- Up to 32 internal / external parties per conference



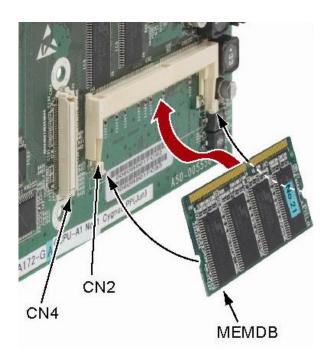
Processor blade

- USB for upgrading software or downloading system data
- Ethernet for
 - PCPro, WebPro,
 - CTI, OAI
 - ACD MIS, PMS
- 3.5mm pin jack for external sources
 - MoH, Back Ground Music,
 - External speaker
 - etc.
- RJ61 external source control connection
- music on hold
 - via the BG / MOH port of CPU.
 - via the voicemail (downloadable wav files)



Memory expansion

- PZ-ME50 memory expansion in case of:
 - NetLink networking
 - System networking (K-CCIS)
 - Remote upgrade
 Note that also an USB key has to be connected
 - More than 64 ports / channels (extensions plus trunks)
- Limitations for CD-CP00 without PZ-ME50:
 - Only 1 SV8100 chassis
 - Only 1 CD-LTA / CD-LTB card in SV8100
 - Max 8 ports InMail VM / VRS
 - DtermIP does not work
 - Max 64 ports with flexible port assignment
 - Virtual extensions will not be limited (BCT!)



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	Port		Max	imal nu	mber of p	orts	
PZ-ME50	capacity	TDM			IP		
memory	license	Phone	Trunk	Total	Phone	Trunk	Total
Not Mounted	None	64			64 64		64
Mounted	None		128		512	200	712
Mounted	256 Port License	256	200	256	512	200	712
Mounted	Unlimited Port License	512	200	712	512	200	712

- InMail in SV8100 without_memory card (PZ-ME50) → 8 ports
- InMail in SV8100 **with** memory card (PZ-ME50) →16 ports
- NB. 256 / unlimited port license upgrade requires SV8100 reboot



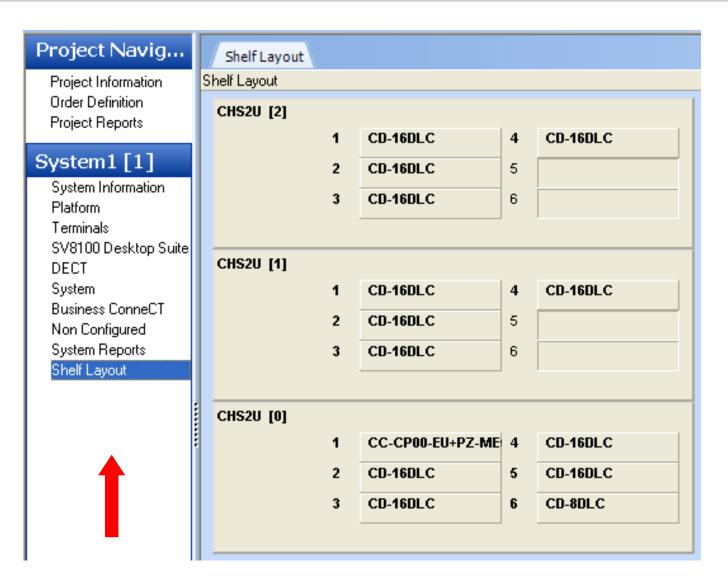
Port Calculation

Example:

• SV8100 with 200 DT310 telephones

	Quote	Material Specification	Configuration Difference	S
	Qty De	scription	Prod.Code	
Е	iSF	'BX	<u> </u>	_
	200 DT	L-2E-1P(BK)TEL (DT310)	BE106854	
	9 Cat	ole RJ21X-6xRJ61X 4.5 mtr.	9600 016 60000	
	9 24 1	Port PATCH PANEL	9600 511 50230	• • • • •
	2 CH:	S2U-EU	BE106529	Configuration:
	1 SV8	3100 Starter Package EU	BE108094	
	1 PZ-	BS10	BE106342	More than 64:
	2 PZ-	BS11	BE106343	•
	1 PZ-	ME50-EU	BE107322	Enhanced memory
	12 CD	-16DLCA	BE106345	
	1 CD	-8DLCA	BE106344	More than 129
	3 CH:	2U RACK MOUNT KIT	BE106405	More than 128,
Ξ	iSF	BX Licences		But less than 256:
	1 LK-	SYS-256 PORT-LIC	BE107573	 256 capacity license
	1 LK-	SYS-SMDR-LIC	BE107576	200 04p401.7 11001100

Example: SV8100 with 200 DT310 telephones



14 blades:

- <u>1x</u> CC-CCPU
- <u>12x</u> CD-16DLC 12x16 = 192
- 1x CD-8DLC 192+8 = 200

Example: SV8100 with 300 DT310 telephones

/	Quote Material Specification	Configuration Differences	
	Qty Description	Prod.Code	
Ξ	iSPBX		
	300 DTL-2E-1P(BK)TEL (DT310)	BE106854	
	13 Cable RJ21X-6xRJ61X 4.5 mtr	. 9600 016 60000	
	13 24 Port PATCH PANEL	9600 511 50230	
	3 CHS2U-EU	BE106529	TDM
	1 SV8100 Starter Package EU	BE108094	• • • • • • • • • • • • • • • • • • • •
	1 PZ-BS10	BE106342	_
	3 PZ-BS11	BE106343	For >256 ports (trunks+ex
	1 PZ-ME50-EU	BE107322	Enhanced memory
	19 CD-16DLCA	BE106345	•
	4 CH2U RACK MOUNT KIT	BE106405	
3	iSPBX Licences	,	
	1 LK-SYS-256 PORT-LIC	BE107573	256 capacity license
	1 LK-SYS-SMDR-LIC	BE107576	
	1 LK-SYS-UNLIMT PORT-LIC	BE107572	- Unlimited part license
			Unlimited port license

Example: SV8100 with 214 analogue ports, 1 ISDN PRI card plus InMail with 10 VM users and 4 sim. voice prompt languages Port Calculation

Qty	Item	Prophix	Cap Lic
1	CPU, 1xBS10, 2xBS11	CD-CP00-EU, PZ-BS1x	
3	Rack mount	CH2U Rack mount kit	
3	Chassis	CHS2U-EU	
1	ISDN PRI card	CD-PRTA	30
13	Analogue line card	CD-8LCA	104 (13x8)
13 A	nalogue line card (daughter)	PZ-8LCE	104 (13x8)
1	Analogue line card	CD-4LCA	4
1	Combination blade	CD-LTB	2
1	Extended memory	PZ-ME50-EU	
1	InMail	PZ-VM21 plus modem	16 (me50)
1	Voicemail software	AKS InMail EU	
1	Extra simultaneous language	lks-vm-language1-lic	
10	User license	lks-vm-user1-lic	+
1	256 port capacity	lk-sys-256 port-lic	260 (>256)
1	Unlimited port capacity	lk-sys-unlimt port-lic	

InMail without_memory card (PZ-ME50) → 8 ports; With ME50 → 16 ports

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Expansion

Expansion system



PZ-BS11
Installed on each
expansion
chassis

PZ-BS10
Installed in EXIFU

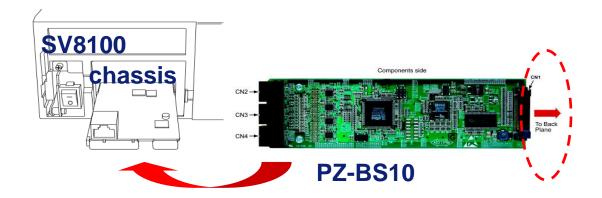
- Expansion system supports 6 optional slots
- Max. 4 chassis per system
- All blades can be replaced while SV8100 is powered up:
- Except CD-CP00, PZ-BS10/11, PZ-ME50, PZ-xxIPLA, PZ-VM21
- To remove any of these blades, SV8100 must first be powered down



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Expansion

- **EXIFU** = **EX**pansion InterFace Unit
- Enables CCPU to transmit and receive data to additional chassis
- Special cable cable (1.2 m) is used to connect:
 - the controlling chassis and its PZ-BS10 interface
 - to the 2nd, 3rd, and 4th PZ-BS11 interface
- Each BS11 provides 32 extra DMTF receivers to 2nd, 3rd and 4th cab.
 - CPU has already DMTF 32 receivers
 - The overall limit if 96. 32 in the first and 64 shared between the remaining 3.





9.5" Chassis

- 9.5", CHS2UB-EU,
- One CPU blade
 - On board VoIP resources
 - On board Voice Mail, InACD
- Two universal slots for trunk, extension or application
- 512 IP ports
- 32 TDM ports
- All telephone and networking functions of SV8100

SV8100 Sales Support Training - System

Small battery box, battery set 2x12V

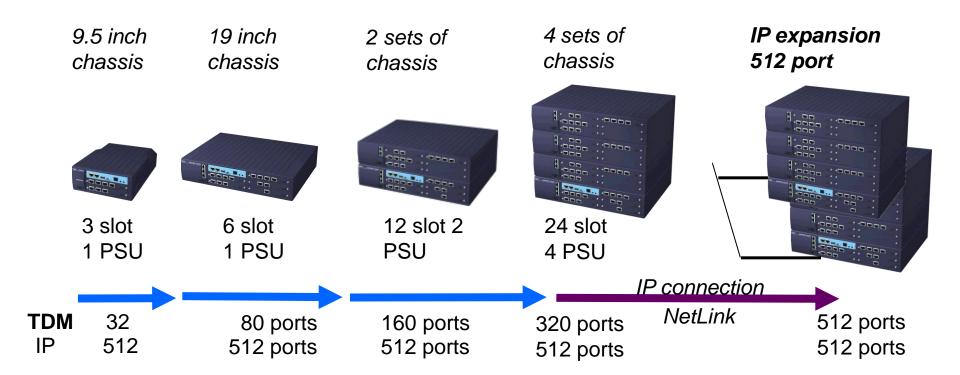


9.5" Chassis

- Boundaries mentioned in tables with boundary overviews
- No stack mechanism for extra chassis like for 19" (no expansion)
 - No expansion by PZ-BS10/11
- Prophix: Option to upgrade from existing 9.5" SV8100 to 19" SV8100
- Put on the market because of attractive pricing
- Not the successor of IPC100!
- 3-slot chassis must be installed and placed vertically:
- A desk mount unit is available for vertical placement
- Easily mountable
- No fan available
 - Forced cooling
 - Quiet
- No 19" rack mounting possible



CAPACITY



TDM:

- Max. 80 terminals per 2U/19" chassis due to power restrictions
- Max. 4x19" chassis (1CPU + 23boards) in single node
- Max. capacity requires multiple nodes, connected by NetLink



Chassis size	9.5"	19"				
Amount of chassis	1+cpu	1 +cp u	1-cpu	2 (12)	3 (18)	4 (24)
# slots for interface blades	2	5	6	11	17	23
CHS2U 19" chassis	0	1	1	2	3	4
PZ-BS10 expansion 3 jack	0	1	0	0	0	0
PZ-BS11 expansion 1 jack	0	0	1	1	2	3
CHS large battery box	0	1	1	2	3	4
CHSGW small battery box	1	0	0	0	0	0
CHS2U fan box set	0	1	1	2	3	4
MPS701 power supply	1	1	1	2	3	4
CD-CP00 CPU blade	1	1	0	1	1	1
PZ-32 / 64 / 128 IPLA	1	1	0	1	1	1
PZ-ME50 memory	1	1	0	1	1	1
PZ-VM21 voice mail	1	1	0	1	1	1

Chassis size	9.5"	9.5" 19"			Networ	
Amount of chassis	1 (3)	1 (6)	2 (12)	3 (18)	4 (24)	k
IP trunks (SIP)			2	00		
Analog trunks (COT)	16	40	88	136	184	200
ISDN PRI channels	60	90	180	180	180	200
ISDN BRI channels	16	40	88	136	184	200
DT700 series	512					
SP310 soft phone			1.	28		
SIP DECT terminals	250					
Standard SIP/WLAN terminals			5	12		
DT300 series	32	80	160	240	320	512
Analog terminals SLT (-24V)	32	80	160	240	320	512
Analog terminals SLT (-48V)	8	20	44	68	92	512



Chassis size	9.5"	19"			
Amount of chassis	1 (3)	1 (6)	2 (12)	3 (18)	4 (24)
IP PAD VoIP channels		32	/ 64 / 128	3	
IP PAD VoIP channels + sRTP	24 / 48 / 96				
SV8100 InMail	8/16 channel* and 32 hrs storage 576 mailbox				
VRS channels	16				
V90 modem	1				
InACD	512 agents; 64 ACD groups				
Interactive Voice Response	Up to 16				
NetLink networking	50 systems				
K-CCIS networking	Max 255 systems				
Gigabit POE switch (8 ports)	2	2	4	6	8

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SV8100 Blade names

CD - Base blade

PZ - Daughter card

BS10 - EXIFU - 3 connections (1 per system)

BS11 - EXIFU - 1 connection (Expansion)

ME50 - Memory expansion

IPLA - VoIP daughter card

DLCA - Digital extension

LCA - Analogue extension (SLT)

COT - Analogue Trunk (PSTN)

DTA - E&M Tie line

BRIA - Basic Rate (ISDN2)

30PRTA - Primary Rate (ISDN30)

LTA - Combo Card 8 digital + 2SLT

LTA+2BRI - Combo Card 8 digital + 2SLT + 2xISDN2

LTA+4COT - Combo Card 8 digital + 2SLT + 4xPSTN

Blade Names

Functions	SV8100 Name
Main Processor Unit	CD-CP00
System expansion I/F for 1st Base chassis	PZ-BS10
System expansion I/F for 2nd, 3rd, 4th Expansion chassis	PZ-BS11
16ch Voice mail (Mounted on CCPU)	PZ-VM21
Memory expansion (Mounted on CCPU)	PZ-ME50
32/64/128VOIP (Mounted on CCPU)	PZ-32/64/128IPLA
8 Digital	CD-8DLCA
8 Digital Daughter (on 8DCLA)	PZ-8DLCB
4 Analog Trunk interface (Loop Start)	CD-4COTA
4 Analog Trunk interface goes on 4COIU	PZ-4COTE



Blade Names

Functions	SV8100 Name
4/8 SLT interface w/ MW	CD-4LCA/PZ-8LCA
4/8 SLT interface w/ MW goes on 4/8SLIU	PZ-4LCA/PZ-8LCE
2 Basic rate interface	CD-2BRIA
2 Basic rate goes on 2BRIU	PZ-2BRIA
ISDN PRI/T1/E1 trunk interface	CD-PRTA
4 DID/OPX interface	CD-4DIOPA
4 E&M trunk interface	CD-4PDTA
8 Dterm + 2 SLT interface	CD-LTA
2 SLT interface	CD-LTB
In-skin Power over Ethernet switching hub	CD-ETIA
In-skin router	CD-RTB



Combination cards

Daughter blade Controlling chassis	PZ- 2BRIA	PZ- 4COTF	PZ- 4LCA	PZ- 8LCE	PZ- 8DLCB
CD-LTA or CD-LTB (Combo)	Yes	Yes	_	_	_
CD-4COTB (PSTN)	_	Yes	_	_	_
CD-4LCA (SLT)	_	_	Yes	Yes	_
CD-8LCA (SLT)	_	_	Yes	Yes	_
CD-8DLCA (Digital)	_	_	_	_	Yes
CD-16DLCA (Digital)	_	_	_	_	_
CD-2BRIA	Yes	_	_	_	_

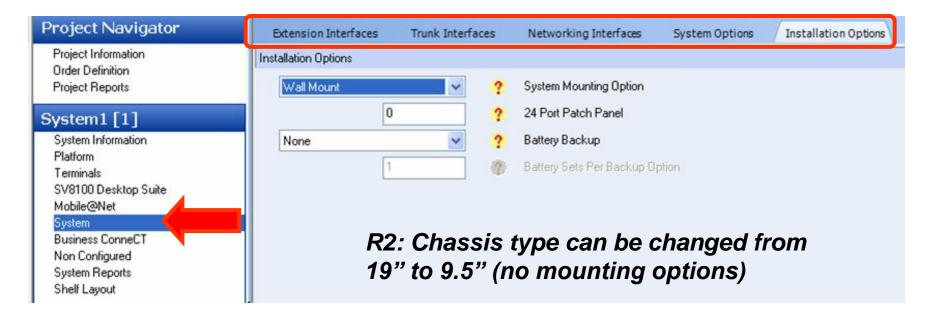
Example: CD-LTA can have

a PZ-2BRIA daughter board or a PZ-4COTF daughter board mounted

Agenda

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

- System mounting
- Patch panel
- Battery backup





System mounting

- Options
 - None
 - Rack mount
 - Floor stand

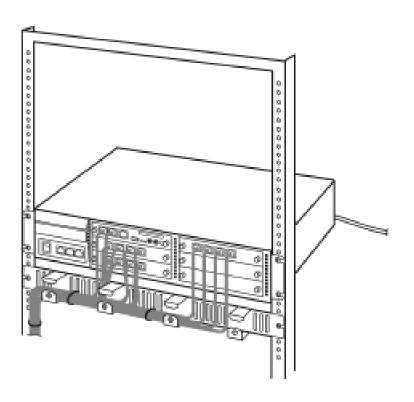
Wall mount

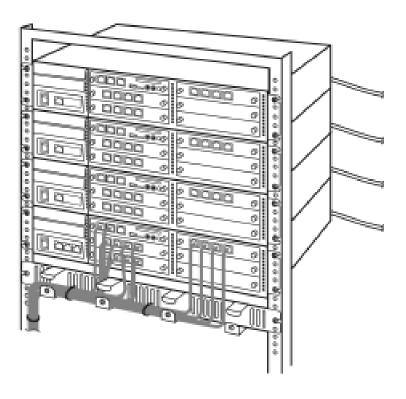
SV8100 HW manual mentions more mounting options

Prophix terms

- → No mount kit
- → CH2U Rack mount kit (default)
- → CHS Base unit
- → CHS2U Joint bracket kit
- → CHS1U/2U Wall mount kit

Rack mount Mounting

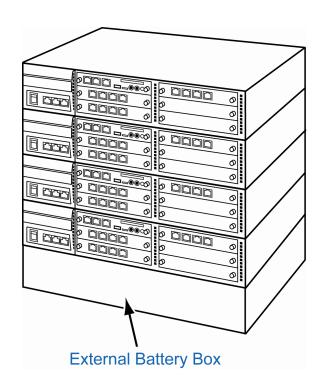


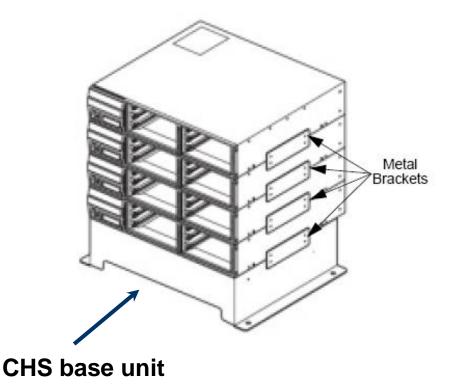


Floor stand Mounting

Consists of:

- CHS Base unit
- CHS2U Joint metal bracket kit

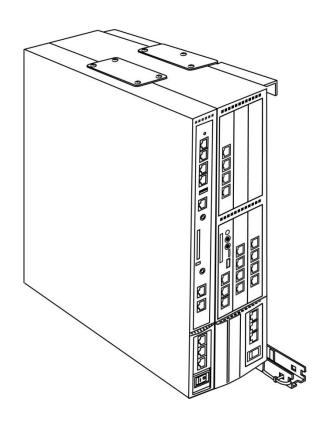


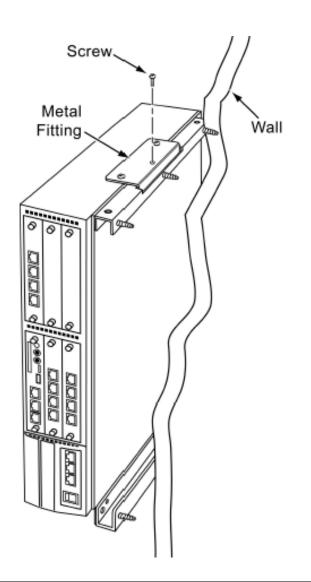


Wall mount

Mounting

Ensure the wall can support total weight



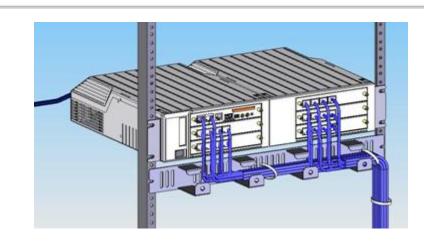


Patch panel

Option

24 port patch panel:

• RJ21 → 6x RJ61 cable (4.5 meter)



From SV8100 boards

- 6x physical <u>RJ45</u> connector
- RJ61 wiring applied

To patch panel

- 1x RJ21 connector
- 50 wires / pins
- Connected to patch panel

From patch panel

 Physical connecters to individual phones and trunks





Note: ISDN PRI blades does not use RJ61



Power consumption

- Two types of power factors exist:
 - Board power factor
 - Terminal power factor
- Use power factor to determine upper limit for 1 chassis

Board Power Factor

Total	=<7
ltem	Power Factor
CD-CP00	1
CD-RTB	2
CD-VM00	2
CD-ETIA	2
CD-PVAA	1
PZ-32IPLA	1
PZ-64IPLA	2
PZ-128IPLA	2

Terminal Power Factor

19 inch Chassis	=<80
Item	Power Factor
DTL-24D-1 TEL	1
DTL-8LD-1 TEL	1.5
BHA-L Unit	2
ADA-L UNIT	2
APR-L UNIT	2
BCH-L (BK) UNIT	2
Power Save Adapter	1
8LK-L UNIT	0
DCL-60-1 CONSOLE	2
ITL-320C-1 TEL	6
ITL-24D-1 TEL	4
ITL-2E-1 TEL	4
ITL-6DE-1 TEL	4
SLT	1
PGD(2)-U10 ADP	2
SLT Adapter	5



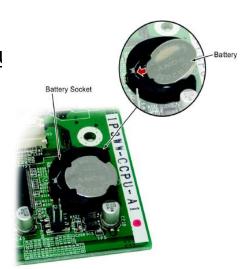
Backup battery

Battery on **CPU blade**:

- Retains clock, calendar, last nr redial buffers for each station during CPU power loss
- Settings retained for 3 years (fully charged battery)

Internal battery into SV8100 chassis:

- Keeps 1 chassis / 24 terminals running for about 10 minule
- Short-term survivability in case of mains power failure
- Per chassis maximal 1 internal battery
- 2 batteries into CHS2U battery mgt kit
- Means: 2 x 12 VDC / 2.3 Ah = 24 VDC / 2.3 Ah



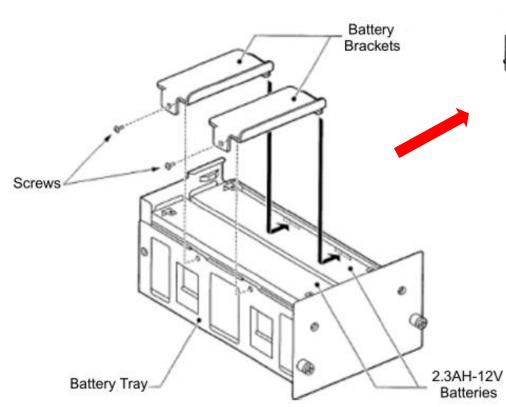
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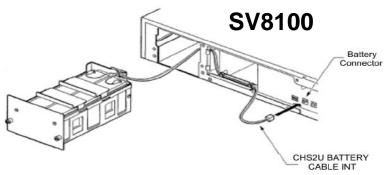
- Battery life time influenced by often power failing, location temperature, etc. Advise: Replace batteries every 3 years
- An alarm is raised when the batteries are failing



Internal backup battery

Short term backup:





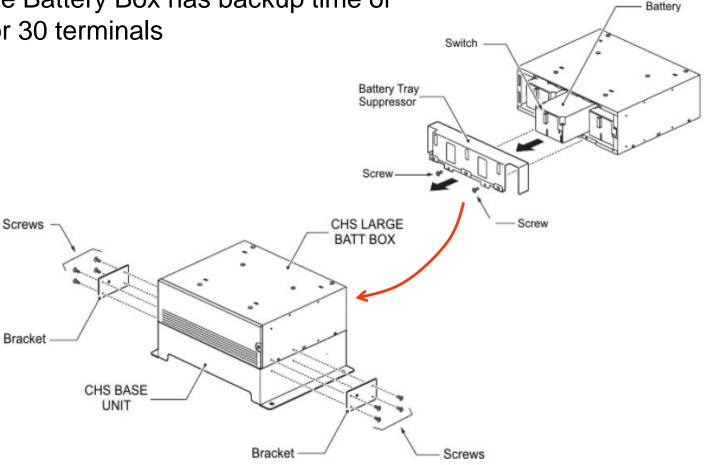
- Connect battery cables to batteries
- Connect CHS2U battery cable to battery connector
- Install CHS2U battery mgt kit into CHS2U

External backup battery

Optional, locally procured source

Provides power in event of power failure

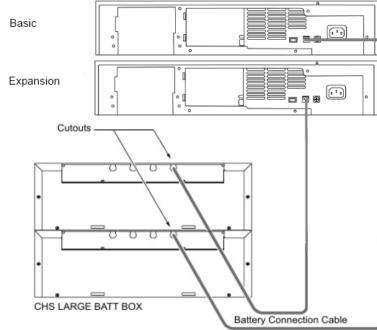
CHS Large Battery Box has backup time of 3 hours for 30 terminals



External backup battery

Complete installation described

in HW manual



Configuration SV8100	Battery Capacity (Number of Batteries)	Number of CHS LARGE BATT BOX
2U x 1	21AH (=3 sets of [2x12V-7AH])	1
2U x 2	42AH (=6 sets of [2x12V-7AH])	2
2U x 3	63AH (=9 sets of [2x12V-7AH])	3
2U x 4	84AH (=12 sets of [2x12V-7AH])	4

One CHS LARGE BATT BOX can be used for 4 x 2U chassis for approximately 45 minutes.



Agenda

Installation options

System options

Networking interfaces

Trunk interfaces

Extension interfaces

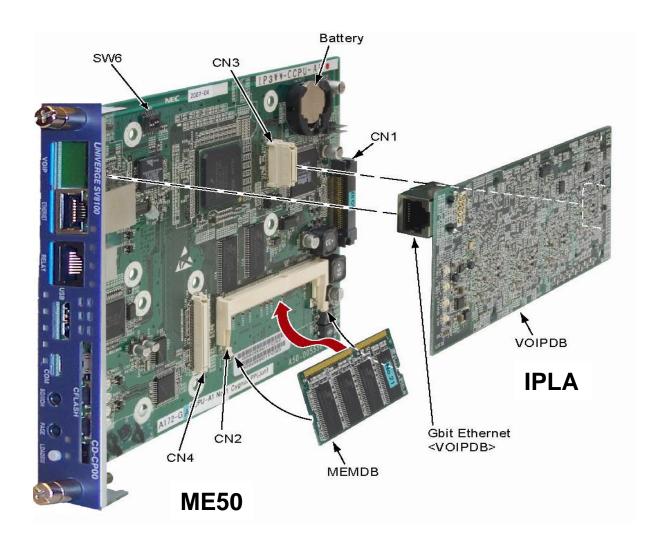
System expansion



- System options
- Embedded applications
- Auxilary interfaces
- External application interfaces
- In-skin network components

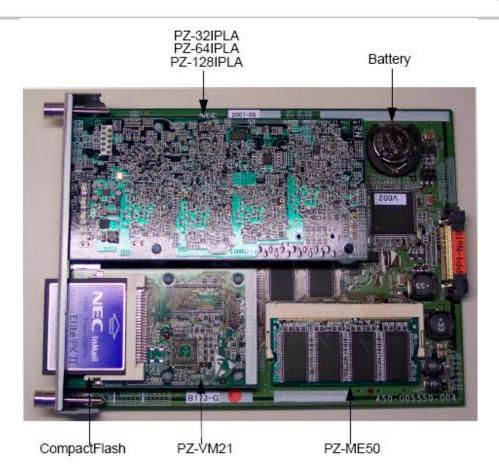






- Daughterboard on CPU blade
 - PZ-32IPLA: 32 channels
 - PZ-64IPLA: 64 channels
 - PZ-128IPLA: 128 channels
- Only 1 IPLA per CPU blade
 - Ethernet interface via CPU blade
 - No upgrade possible

- Max # simultaneous trunks
 - Pure IP → 128 trunks
 - IP & TDM → 200 trunks
 - Someone can program more trunks but assign the IPLA channels not exclusive, so creating a **pool** with blocking chance



Page 41

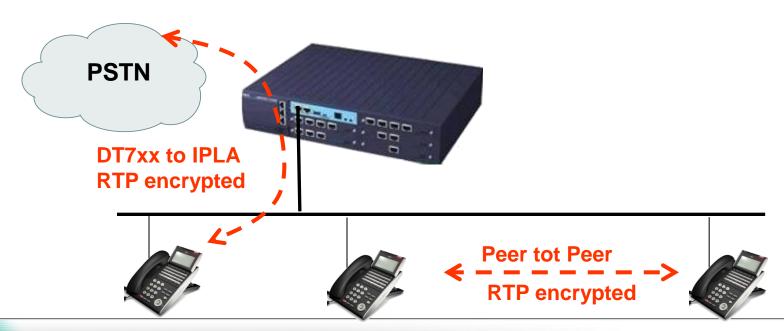
Required for:

- Calls between IP phones and TDM phones (not for TDM to ISDN trunk)
- Calls to and from IP trunks
- K-CCIS, NetLink
- IP Feature Networking / AspireNet (VoIP)

Supported codecs:

- G711
- G722, G723.1, G726, G729ab
- G3 Fax
- iLBC (Internet Low Bitrate Codec, freeware)
- T.38 support (from r4 on)
- G.723.1 without encryption → 24 / 48 / 96 (iso 32 / 64 / 128)
 G.723.1 with encryption → 16 / 32 / 64
 Other codec with encryption → 24 / 48 / 96

- **Secure RTP** on DT7x0 phones:
 - Encryption of voice and signalling (128bit AES)
 - Joint feature between IPLA and DT7x0 (V2.2.1 firmware)
 - Encryption to SV8100 or peer tot peer between DT7x0's
 - User can see if in secure speech mode: <u>key</u> present on DT7x0 display
 - Not possible to listen to conversation by capturing packets on network
 - Encryption license in SV8100



- Prophix automatically generates required IP gateway channels
- Professional users can decide to deviate from standard calculations or anticipate on future enhancements

Example:

- SV8100-1: 34 channels = PZ-64IPLA
- SV8100-2: 12 channels = PZ-32IPLA

Extension Interfaces	Trunk Interfaces		Networking Interfaces	System Options			
靠 IP Gateway Resources							
34	P IP Gateway Resources for Primary		rimary Node				
12		?	IP Gateway Resources for Secondary Node				

- Required # channels is based on (common platform) Erlang calculations:
 - 0.09 Erlang external traffic, 0.06 Erlang Internal traffic
 - 0.02 Erlang feature traffic per user; 0.105 intra-node traffic
 - 0.02 Network traffic, 0.5% blocking probability

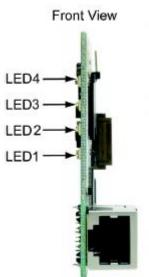


IP ports

- O&M NIC port (10/100M) is built-in on CPU blade:
 - Linked with LAN / WAN to work with PCPro, SMDR, OA, etc.
- **IPLA** has VoIP NIC port with Gigabit Ethernet:
 - Linked with LAN / WAN for control signaling and voice signaling (RTP) for IP terminals



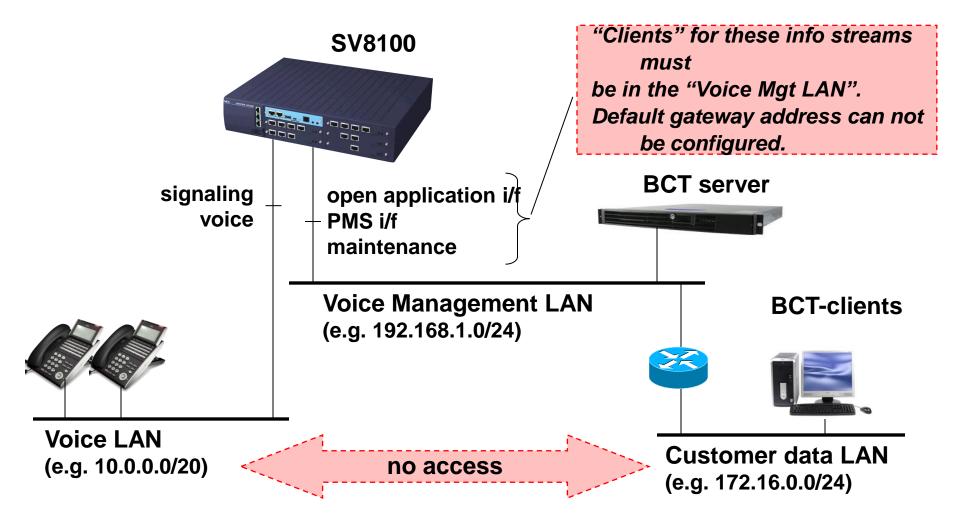
Management and speech on different ports



LED	Function	LED Status	Operation Status
Link 10/100 (LED 1)	10Base-T/100Base-TX link speed indicator	On Red	100Base-TX link up
LINK 1000 (LED2)	1000Base-T link speed indicator	On Red	1000Base-T link up
DUPLEX (LED3)	Duplex Status	On Yellow	Full duplex operation
ACT (LED4)	Link activity or data transmission and reception	On Green	Link up completed

IP ports

Separate (V)LANs for voice and management → improved security



Fax messages

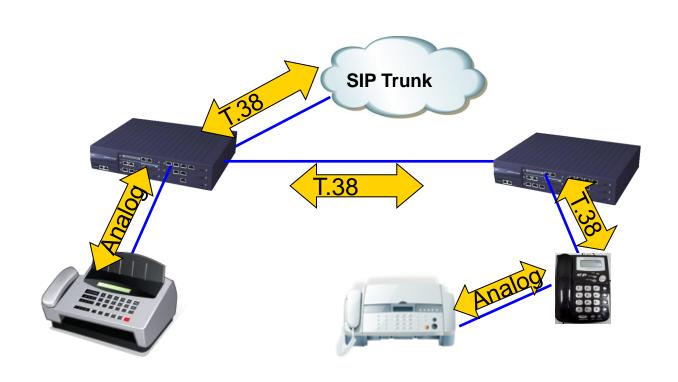
- Fax can be sent to DT330+APR-L (connected to fax machine)
- SV8100 supports G4 faxes but only if:
 - They are an ISDN fax on an S0 bus and
 - The lines are ISDN, because G4 is an ISDN fax protocol
- T.38 support (From r4 on)
- No other limitations in fax / modem calls across Netlink or IP FeatureNet
- Fax can be sent to InMail:
 - Fax detection and transfer to fax machine
 - This is G3 if it is forwarded to an analogue fax machine
- UM8000 Unified Messaging integrates fax, voice, video and e-mails:
 - Detects fax tone and automatically transfers to fax machine



SIP: Fax Over IP (T38 Support)

Supported on:

- **SIP Extension**
- SIP Trunk
- Netlink
- **FeatureNet**
- **Kccis**



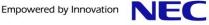
Required License:

LK-SYS-SIPT38-LIC

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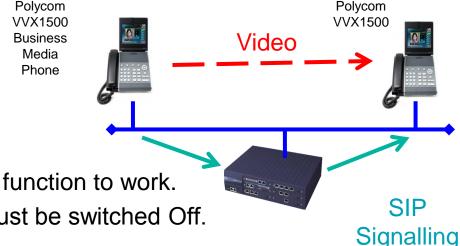
(Fax Over IP License

BE110213)



peer to peer Video over IP

- SV8100 passes request for video codec to the video device.
- Video compatibility is the responsibility of the devices as the SV8100 makes no changes to the video data.
 - Interoperability should work when video devices support same codecs, for example Polycom VVX1500 and X-Lite have been successfully linked.



Note:

- P2P SIP must be turned On for this function to work.
- For app's such as BCT, P2P SIP must be switched Off.

Required License:

LK-SYS-SIPVIDEO-LIC (Video Over IP License BE110214)

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

System options

Remote upgrade:

- Enable it if remote software upgrade for the system should be supported
- Prophix assures the required memory (PZ-ME5) will be available in the system

Integrated modem:

- Enable it if an integrated modem for dial-in over analogue line is required
- Prophix assures the required modem supporting card (PZ-VM21) will be available in the system



Empowered by Innovation

