



IBM eServer zSeries 890 and 990

IBM OSA-Express Integrated Console Controller (OSA-ICC) Implementation

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OSA-Express ICC



Agenda

- **What is it ?**
- **What's required ?**
- **How do I define it ?**
 - HCD/IOCP
 - Adapter Port Setup
 - Sessions Setup
- **PCOMM Setup**
- **Comparisons to 2074 and Integrated HMC**
- **Resources**

2

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What is it ?

- Console Controller for z990 and z890
 - System Console (IPL) and operations support for multiple LPARs
 - 120 Sessions per port (2 ports per feature)

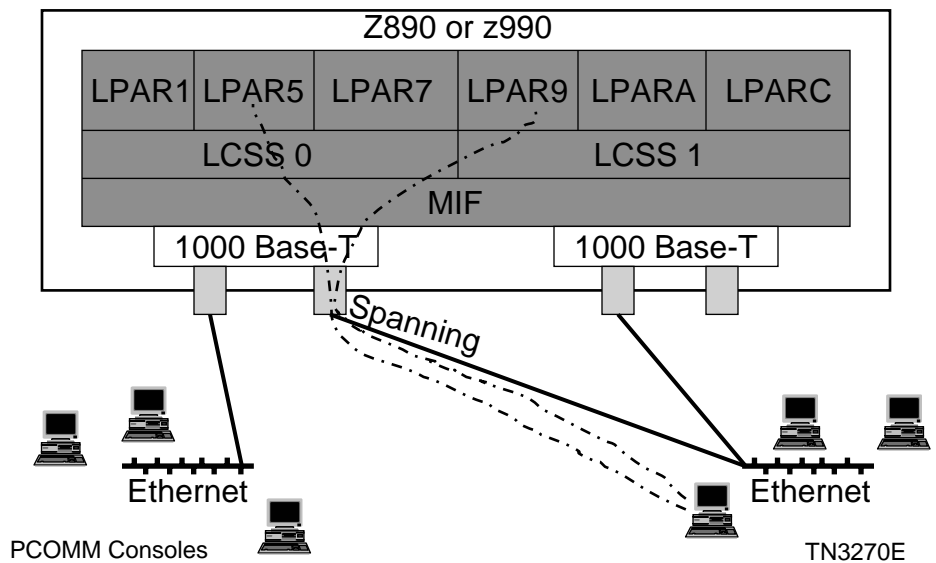
- Exclusive to OSA-Express 1000BASE-T Ethernet (FC1366)
 - 10/100/1000 Mbps (1 Gbps)
 - No Token-Ring
 - RJ-45 connection to category 5 Unshielded Twisted Pair (UTP) copper cabling
 - Port operation defined with new CHPID type = OSC
 - OSC is mutually exclusive with QDIO (OSD) or non-QDIO (OSE) CHPID on port
 - One or both ports can be individually configured for Integrated Console Controller
 - Spanned channels allows port(s) sharing among z990 and z890 LCSS and LPARs

- Supports Ethernet-attached TN3270E emulated sessions
 - Non SNA DFT Terminals
 - Must be TCP/IP RFC 2355 compliant

- Can coexist in configurations using prior IBM 2074 models and older 3174 controllers
- No coaxial cable support
- Configuration support provided via Support Element or Hardware Management Console



What is it ?





What is it ? (Benefits)

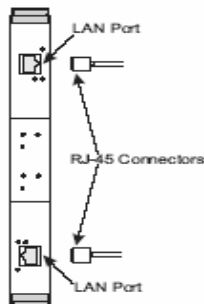
- Simplicity and consolidation
 - Lower number of components
 - no external controller, displays, ESCON® ports
 - Less configuration
- Improved availability of controller function
 - Remote management via HMC
 - Lights out operation possible
 - Hot plug OSA-Express
- Scalable capacity
 - Up to 120 console sessions per port with access to up to 30 LPARs
 - Shared ICC port via spanned channel support across multiple Logical Channel Subsystems
- Can provide lower TCO ... integrated on OSA-Express port(s)
 - No charge function included in LIC and enabled by CHPID definition
 - Can provide lower operating cost - power, cooling, space, administration, no rack, no keyboard/display
- Potential Personnel Efficiency
 - Multiple sessions per console can increase user session availability and access
 - Remote user console session capability. Transport security depends on network VPN



What's Required ?

- **zSeries 890 or 990**
- **OSA-Express 1000Base-T**
 - Feature Code 1366
 - RJ45 Ethernet LAN attachment
- **ICPIOCP**
 - OA06464 - z/OS
 - VM63443 - VM
 - DY46105 - VSE
- **Minimum OS**
 - z/OS 1.3, z/OS.e 1.3 + OA05738
 - HCD + OA03689
 - z/VM 5.1, z/VM 4.4 + VM63405
 - VSE/ESA 2.6
 - TPF 4.1
 - (no Linux support)
- **TN3270E clients**

FC 1366
1000BASE-T Ethernet





How do I define it ?

RESOURCE

```
PARTITION=( (CSS(0), (A0A,A), (A0B,B), (A0C,C), (A0D,D), (A0E,E), (A0F,F),
(A01,1), (A02,2), (A03,3), (A04,4), (A05,5), (A06,6), (A07,7), (A08,8), (
A09,9)), (CSS(1), (A1A,A), (A1B,B), (A1C,C), (A1D,D), (A1E,E), (A1F,F), (A
11,1), (A12,2), (A13,3), (A14,4), (A15,5), (A16,6), (A17,7), (A18,8), (A19
,9))), MAXDEV=( (CSS(0), 64512), (CSS(1), 64512))
```

CHPID

```
PATH=(CSS(0), 07), SHARED, PARTITION=( (A0A,A0B,A0C, A01,A02,A03,A04, A0
5,A06,A07,A08,A09), (=)), PCHID=380, TYPE=OSC
```

CHPID

```
PATH=(CSS(1), 07), SHARED, PARTITION=( (A1A,A1B,A11,A12,A13,A14,A15,A1
6,A17,A18,A19), (=)), PCHID=381, TYPE=OSC
```

```
CNTLUNIT CUNUMBR=E200, PATH=( (CSS(0), 07) ), UNIT=OSC
```

```
IODEVICE ADDRESS=(E200,120), MODEL=X, CUNUMBR=(E200), UNIT=3270
```

```
CNTLUNIT CUNUMBR=E300, PATH=( (CSS(1), 07) ), UNIT=OSC
```

```
IODEVICE ADDRESS=(E300,120), MODEL=X, CUNUMBR=(E300), UNIT=3270
```



Adapter Port Setup

SCZP702 SCZP801 SCZP901

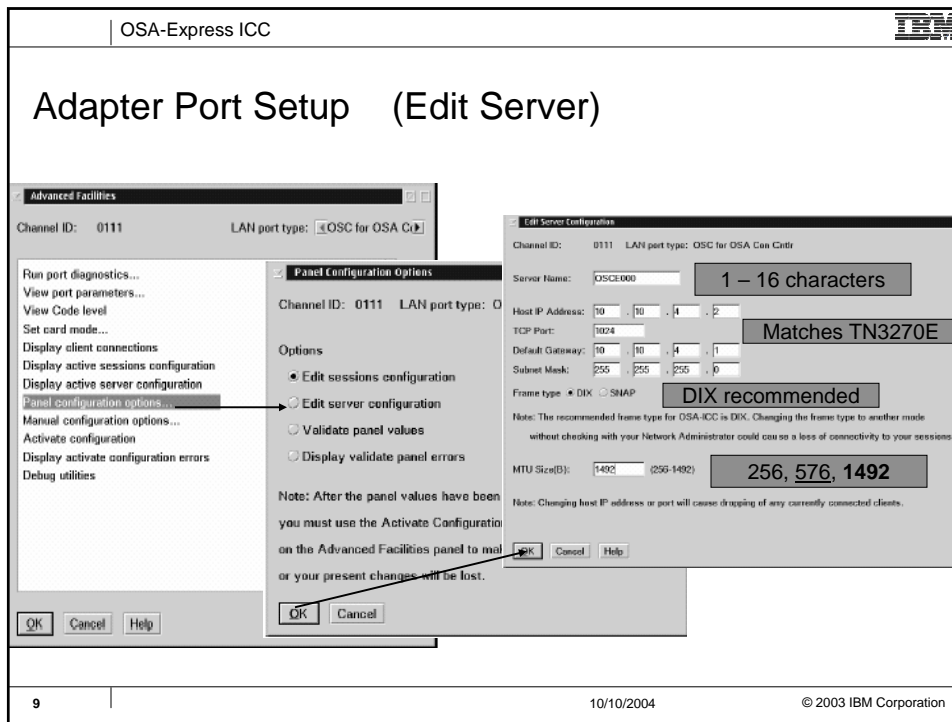
CPC Operational Customization

Standard Channel Advanced Facilities

Channel ID	Channel Type
0110	OSC
0111	OSD
0120	OSD
0121	OSD
0180	OSD
0181	OSD
0188	OSD
0191	OSE

Channel ID: 0111 Channel Type: OSC Description: Fast Ethernet PCI-X

- Card specific advanced facilities...
- View code level
- Card Trace/Log/Dump facilities...
- Reset to defaults...



OSA-Express ICC

ATTENTION ! ! ! !

- Changing any of the above server configuration definitions, other than Server Name, will result in all sessions currently connected through this OSA-ICC port to be dropped, when the validated configuration is next ***activated***.
- Clicking **OK** on the Edit Server Configuration panel *will not* drop sessions.

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OSA-Express ICC

Adapter Port Setup (Edit Sessions)

Channel ID: 0111 LAN port type: OSC for OSA Cntr

Run port diagnostics...
View port parameters...
View Code level
Set card mode...
Display client connections
Display active sessions configuration
Display active server configuration
Panel configuration options...
Manual configuration options...
Activate configuration
Display activate configuration errors
Debug utilities

Panel Configuration Options
Channel ID: 0111 LAN port type:
Options
 Edit sessions configuration
 Edit server configuration
 Validate panel values
 Display validate panel errors

Note: After the panel values have been changed, you must use the Activate Configuration button on the Advanced Facilities panel to make them active, or your present changes will be lost.

Save Change Cancel Help

Index	State	CSS	MIFID	Device Number	LU Name	Client's IP	Session type	DHD	RSP	RTO
1	Not config'd	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
2	Not config'd	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
3	Not config'd	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
4	Not config'd	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
5	Not config'd	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
6	Not config'd	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
7	Not config'd	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
8	Not config'd	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
9	Not config'd	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
10	Not config'd	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
11	Not config'd	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
12	Not config'd	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
13	Not config'd	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
14	Not config'd	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
15	Not config'd	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0

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Adapter Port Setup (Edit Sessions continued)

Channel ID: 0111 LAN port type: OSC for OSA Cntr

Session Index: 1
Session State: Not configured
CSS Value: 1
MIFID: 0-3
Device Number: E000
LU Name: SC04E000
Client's IP Address: 10 . 10 . 10 . 2

Session Type: TN3270 • Operator console • printer
Defer Host Disconnect: enable with defaulted deferral of 60 seconds
 enable with user specified defaulted deferral of _____ seconds

Blank, zeros, or specific

Index	State	CSS	MIFID	Device Number	LU Name	Client's IP	Session type	DHD	RSP	RTO
1	Available	1	1	E000	SC04E000	10.10.10.2	Op Console	Enable	Enable	10
2	Not config'd	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
3	Not config'd	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
4	Not config'd	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
5	Not config'd	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
6	Not config'd	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
7	Not config'd	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
8	Not config'd	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
9	Not config'd	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
10	Not config'd	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
11	Not config'd	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
12	Not config'd	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
13	Not config'd	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
14	Not config'd	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
15	Not config'd	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10

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Edit Session Configuration

Channel ID: 0111 LAN port type: OSC for OSA Can Cntr

Session Index: 1

Session State: Not configured

C55 Value: 1

MIFID: 1

Device Number: E000

LU Name: SC64E000

Client's IP Address: 10 . 10 . 10 . 2

Session Type TN3270 Operator console printer

Defer Host Disconnect ← **DHD**

- disable
- enable with defaulted deferment of 60 seconds
- enable with no timeout for deferment
- enable with user specified defaulted deferment of:

OK Delete Session Cancel Help



Edit Session Configuration (scroll down on panel)

enable with no timeout for deferment

enable with user specified defaulted deferment of:

Defer Host Disconnect time value (seconds): 600

Response mode enable disable ← **RSP**

Note: If the Response mode is enabled, then the timeout is specified via the Read Timeout value setting.

Read Timeout ← **RTO**

- disable
- low (1 second)
- medium (10 seconds)
- high (60 seconds)
- user specified timeout of:

If this session is active, then changing configurations can cause client connection to drop.

OK Delete Session Cancel Help



Defer Host Disconnect

1. Disable
 - Immediately notify host OS of a disconnect
 - After reconnecting, a manual Vary on-line of the Console must be performed from another console
2. Enable with defaulted deferment of 60 seconds
 - Wait for 60 seconds before notifying host OS
 - If reconnected within 60 seconds, simulate a “3270 Clear key”
 - z/OS MCS console support will reformat the screen and continue
3. Enable with no timeout for deferment
 - Never notify the host OS
4. Enable with user specified defaulted deferment
 - Same as #2 with a different time value



Response Mode (RSP)

- Host waits for TN3270E **ack**nowledgement of each CCW sent
- May affect session performance
- My be useful in diagnosing Ethernet LAN connectivity issues.
- Enable or Disable



Read Time Out (RTO)

- Wait time for a response from client session
 - If expired, “disconnect” and inform host
 - Read CCW, Write CCW, Acknowledgement packets
 - **Tied to the RSP (Response Mode) setting – Enabled/Disabled**
- If the Ethernet LAN is busy/slow, increasing this value may prevent unexpected session drops.
- Increasing the RTO value increases the time it takes for the operating system to detect the client session has gone away.
- 1, 10 (default), 60 seconds or user specified

Notes: 1. If No RTO, Disable Missing Interrupt Handler (MIH).
 2. If RTO is specified, make MIH 50% greater than RTO



DHD, RSP, RTO

Edit Sessions Configuration

Channel ID: 0111 LAN port type: OSC for OSA Con Cntl

To change session data, select a line and press Change.

To save session data, press Save.

Index	State	CSS	MIFD	Device Number	LU Name	Client's IP	Session type	DHD	RSP	RTO
1	Available	1	1	E000	SC04E000	10.10.10.2	Op Console	Enabler	Enabler	10
2	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
3	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
4	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
5	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
6	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
7	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
8	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
9	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
10	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
11	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
12	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
13	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
14	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
15	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10

Save Change Cancel Help

Session Configuration	Client's Configuration	Effect
No LU Name and no IP Address	Not allowed	No connection
Unique LU Name	Defined LU No/mismatch LU	Ok No connection
LU specified multiple times and unique in this LPAR	Defined LU No/mismatch LU or defined in multiple LPARs	Ok No Connection
LU Name and clients IP is specified	Good LU, Good IP Good LU, Bad IP No LU, Good IP No LU, Bad IP Bad LU, Good IP Bad LU, Bad IP	Ok No Connection No Connection No Connection No Connection No Connection
Unique Client IP specified	IP Good IP Bad or defined in multiple partitions	Ok No Connection
Client IP specified multiple times and unique to this partition	Defined IP No/mismatch IP or defined in multiple partitions	Ok No Connection

Adapter Port Setup (Validate)

The screenshot illustrates the 'Adapter Port Setup (Validate)' process in the OSA-Express ICC software. The main window, 'Advanced Facilities', shows the 'Panel Configuration Options' sub-window. Within this sub-window, the 'Validate Panel values' option is selected. A message box indicates that the command has completed successfully. Another message box displays a warning: 'The configuration data contains warning(s)/error(s). The return code is 1010. Please use the Display Validate Panel Errors to see them.' A terminal window shows the error message: 'Error 1010 : Session # 2 and session # 1 are the same'. The terminal window also shows the text 'Watson Works' repeated several times.

OSA-Express ICC

Adapter Port Setup (Import/Export/Edit Source)

Manual Configuration Options

Channel ID: 0111 LAN port type: OSC for OSA Can Contr

Options

- Import source file
- Export source file
- Edit source file
- Validate source file

Note: After source file has been validated, you must use the Activate Configuration function on the Advanced Facilities panel to make it active, or your present changes will be lost.

OK Cancel Help

Tip: Export a backup

```
// This file has been generated from the binary file D:\PKCODE\IQZ0111.HUL
<OSA3270>
HOST_IP- 10.10.4.2
DEFAULT_GATEWAY- 10.10.4.1
SUBNET_MASK- 255.255.255.0
PORT- 1024
ETHERNET_FRAME- DIX
RTU- 1492
NAME- OSC000
</OSA3270>

<CONFIG_SESSION>
<SESSION>
CSS- 01 IID- 01 DEVICE- E000
GROUP- "SC64E000"
CONSOLE_TYPE- 2 RESPONSE- ON READ_TIMEOUT- 10
DEFER_HOST_DISCONNECT- 600
CLIENT_IP- 10.10.10.2
</SESSION>
</CONFIG_SESSION>
```

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Adapter Port Setup (Activate)

Advanced Facilities

Channel ID: 0111 LAN

Run port diagnostics...
View port parameters...
View Code level
Set card made...
Display client connections
Display active sessions configuration
Display active server configuration
Panel configuration options...
Manual configuration options...
Activate configuration
Display activate configuration errors
Debug utilities

OK Cancel Help

This could result in active sessions being dropped.

Activate Configuration

! This function makes any configuration changes active immediately.

Select OK to continue the activate configuration.

Select Cancel to end the activate configuration.

OK Cancel

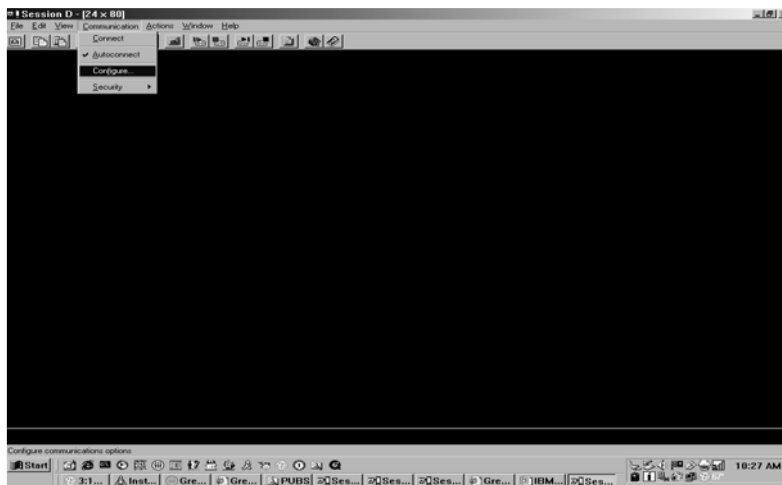
i The command completed.

OK

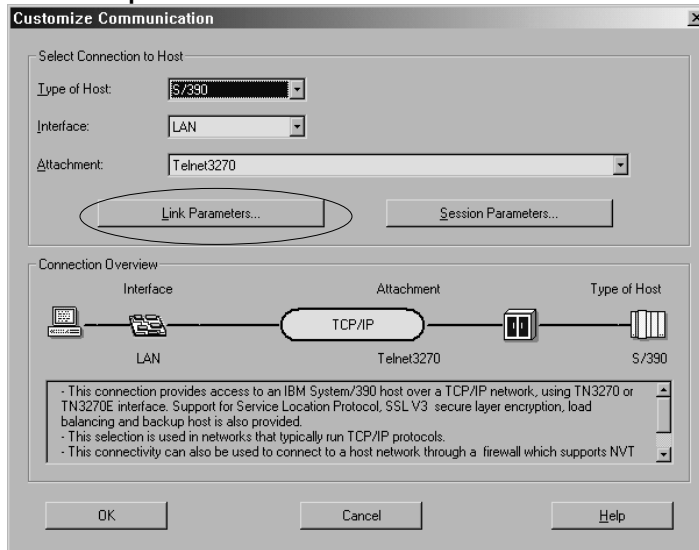
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PCOMM Setup



PCOMM Setup



OSA-Express ICC

PCOMM Setup

Host Definition | Automatic Host Location | Advanced Security Setup

Host Name or IP Address: www.xx.yyy.zzz
 LU or Pool Name: MYLUNAME
 Port Number: 1024

Backup 1:
 Backup 2:
 Auto-reconnect
 Enable Security

Drop Session
 Channel ID: 01C1 LAN port type: OSC for OSA Con Cntrl
 Enter the session index to drop.
 Session index:
 OK Cancel Help

OK Cancel Apply Help

Debug Utilities

Tip: Auto-reconnect recommended, but conflicts with Drop Session

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Comparisons

	OSA-ICC	2074-003	HMC Integrated
z/OS, OS/390	z/OS 1.3, z/OS.e 1.3	All	No
Linux	No	No	LPAR only using ASCII
z/VM, VM/ESA	z/VM 4.4	All	z/VM 4.4
VSE/ESA	VSE/ESA 2.6	All	No
TPF	TPF 4.1	All	No
# Sessions	120 per port (240)	48 per ESCON port (96)	1 session per LPAR
Spanned Channel	Yes	No	No
User Connection	LAN	LAN	LAN
Multiple CECs	No	Yes with multiple ESCON	No
Remote Access	Yes	Yes	Yes
Remote Configuration	Yes via HMC	No	Yes via HMC
3270 device	Yes	Yes	Yes
ESCON to Host	No, OSA-Express	Yes	No
Ethernet to user	10/100/1000 bps	10/100/1000 bps	10/100 bps
Token Ring to user	No	4/16 bps	4/16 bps
S/390 G5/G6	No	Yes	Yes, Driver 26, EC F99918
z800/z900	No	Yes	Yes, Driver 3G, EC J11219
z890/z990	Yes, Driver 55	Yes	Yes

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Resources

- **SA22-7990 OSA-ICC User's Guide**
- **SG24-6364 OSA-ICC Implementation Guide Redbook**
- **World Wide Q&A (Viewblue - QAAuthor)**
- **WSC Flash 10295**
 - <http://w3-1.ibm.com/support/techdocs/atmastr.nsf/WebIndex/FLASH10295>





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