

iSeries. mySeries.

AIX 5L on @server i5
Update

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ITC

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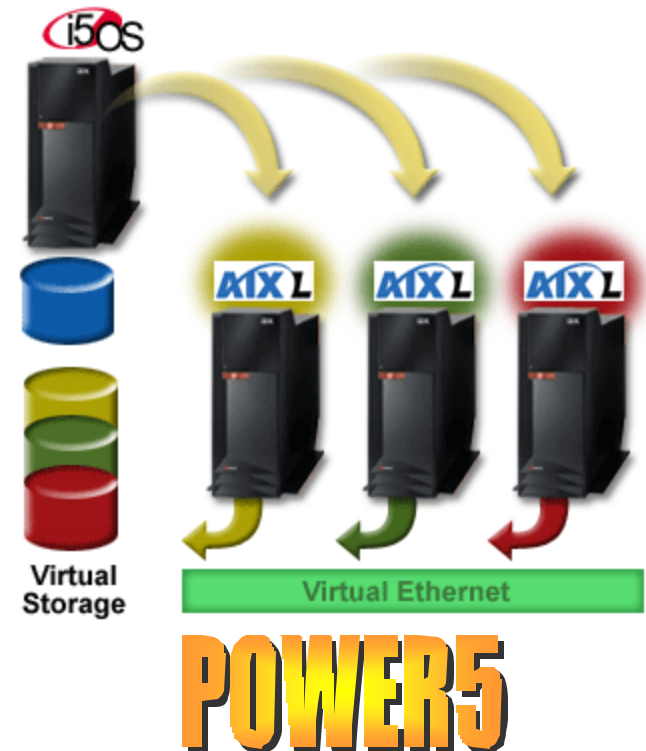
- ❑ **AIX 5L on eServer i5 features**
- ❑ **iSeries and pSeries hardware terminology**
- ❑ **HMC view of AIX 5L direct I/O**
- ❑ **Supported hardware overview**
 - **Special case: CD or DVD in system unit**
- ❑ **Supported hardware FAQ**
- ❑ **List of supported hardware**
- ❑ **Configuration examples**
- ❑ **Expanded discussion of Virtual Storage**
- ❑ **High availability for AIX 5L in consolidated eServer i5 solution**
 - **HACMP**
 - **Virtual storage from two i5/OS partitions**
 - **XSM**

- ❑ Mission-critical UNIX on eServer i5
 - 64-bit AIX 5L running on POWER5
 - Consolidate i5/OS and AIX 5L storage
 - “Killer app” example: database

- ❑ POWER5 LPAR Enhancements
 - Micro-partitioning (AIX 5L 5.3)
 - Up to 160 AIX 5L LPARs
 - Automatic CPU balancing
 - Virtual Storage and Ethernet (AIX 5L 5.3)

- ❑ Across eServer i5 and p5
 - AIX 5L 5.2: whole-processor granularity, direct I/O
 - AIX 5L 5.3: Up to 10 LPARs/processor, virtual I/O

- ❑ Enterprise Edition
 - Extra Processor Activated (570)
 - Service (570), and Education (570) Voucher





**eServer i5 520 +
expansion I/O tower**



**eServer i5 570 +
expansion I/O drawers**

Traditional iSeries terminology

- I/O towers
- Main storage, IOP, IOA
- SLIC, PTFs

Traditional pSeries terminology

- I/O drawers
- HMC
- Memory, PCI adapter
- Kernel, patches

eServer i5

- Model 520 can be in tower or rack
- Model 570 is rack only
- Now has towers and drawers
- Both towers and drawers appear as “units” in HMC
- Units contain buses and adapters



AIX 5L Flexibility: Direct I/O Hardware



Description	I/O Pool Id	Owner
Unit U5095.001.103331C		
Unit U5095.001.103323C		
Bus 11		
Slot C03	Empty slot	Unassigned Unassigned
Slot C01	I/O Processor	Unassigned Unassigned
Slot C04	PCI 100/10Mbps Ethernet	Unassigned AIX
Slot C02	PCI-X Ultra RAID Disk Cont...	Unassigned AIX
Bus 10		
Slot C08	PCI 10/100/1000Mbps Ethe...	Unassigned AIX
Slot C06	I/O Processor	Unassigned Unassigned
Slot C07	PCI RAID Disk Unit Controll...	Unassigned AIX
Unit U787A.001.DNZ016M		

❑ HMC view of eServer i5's physical I/O resources:

- AIX 5L uses IOAs, not IOPs
- Direct I/O assigned in each AIX 5L partition's profile
- Towers and drawers have serial numbers

❑ Common set of AIX 5L adapters for eServer i5 and p5

❑ **HOWEVER: not all eServer i5 AIX 5L adapters are supported on eServer p5, and vice versa**

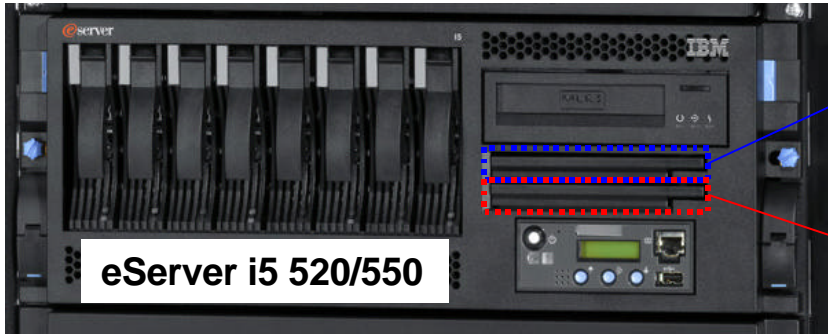
❑ Same adapter may have different feature codes on eServer i5 vs. p5 (0625/6239)



Supported Hardware Overview



- ❑ Supported I/O for AIX 5L document: “AIX 5L Facts and Features”
- ❑ AIX 5L on eServer i5 supports dynamic movement of I/O resources between partitions
 - “Required” I/O adapters cannot be moved dynamically, only “desired” ones
- ❑ **TIP:** In consolidated environment with multiple AIX 5L 5.3 partitions using Virtual Storage, one DVD or tape drive can be purchased, and later switched between those partitions without IPL (reboot). Controller for DVD/tape drive in this case is 0645/5712
- ❑ HMC **will enforce** placement rules for AIX 5L disk controllers: they cannot be “downstream” of i5/OS IOP
 - Applies only to internal DASD controllers (such as 0627/2780)
 - Does not apply to Fibre Channel controllers (such as 0625/5704)
- ❑ Same rules enforced by LVT. **Always use latest LVT from** <http://www-1.ibm.com/servers/eserver/iseriess/lpar/systemdesign.htm>



Slot 1. Usable by i5/OS or AIX 5L

Slot 2. Usable by AIX 5L, not i5/OS

DVD slot 1:

- Controlled by 570B or 5709
- 570B and 5709 need IOP for i5/OS
- 5709 orderable feature
- DVD can be 2640 or 5751
- 570B or 5709 also controls tape slot
- Can be used by AIX 5L
- i5/OS will typically use system unit (and therefore, DVD slot 1), but there is no requirement for this
- Assign 570B/5709 to AIX 5L in HMC to use slot 1

DVD slot 2:

- Controlled by IDE controller on backplane (not in any PCI slot)
- IDE controller always included, not orderable feature
- DVD can be 2640 or 5751
- Assign "Other Mass Storage Controller" to AIX 5L in HMC to use slot 1
- Slot 2 will be accessible to AIX 5L in next version of LVT
- TIP: excellent option for AIX 5L DVD**



Supported Hardware FAQ



- Is there a Fibre Channel adapter for AIX 5L on eServer i5?

Yes, the 0625/5704. It does show up in the LVT as “Fibre Channel Tape Controller,” because it is one for i5/OS. For AIX 5L and Linux, it controls disk (FAStT, ESS) and tape

- There are 2 embedded Ethernet ports in the system unit. Can they be split between 2 different partitions (of any kind)?

No, the dual Ethernet ports are controlled by the same adapter on the backplane. They will show up as 2 network resources in a partition, but cannot be split up between any 2 partitions. They are usable by i5/OS or AIX 5L

- There are 2 embedded USB ports in the system unit. Can they be split between 2 different partitions (of any kind)?

No, the two USB ports are controlled by the same adapter on the backplane. They will show up as 2 USB resources in a partition, but cannot be split up between any 2 partitions. They are usable by AIX 5L, but not i5/OS

- Do I have to use a 7311-Dxx for AIX 5L features on eServer i5?

No, AIX 5L features can be placed in any of the system units, 0595/5095, 5094/5294 or 7311-Dxx.
Use LVT to find out which AIX 5L features are valid where in each system unit or tower



Supported Hardware FAQ



- ❑ What are my options for CD/DVD for AIX on eServer i5?

There are several:

- The 2nd DVD slot in the system unit, controlled by the embedded IDE controller (eServer i5 520 and 550 only)
- An external SCSI DVD drive, attached to a 0645/5712
- The 1st DVD slot in the system unit, controlled by the 570B/5709
- A DVD drive in a 5094/5294 tower, controlled by an 0627/0628/0645

There is no recommendation, the choice depends on the full system configuration.

NOTE: these are the DVD options for AIX 5L without regard to any other partitions. For example, if i5/OS controls the 5709 in the system unit, the 1st DVD slot will not be an option

- ❑ If I allocate an 0645/5712 to an AIX 5L partition, can it control both an external DVD/tape, and internal disks?

Yes. However: the 0645 is a 2-bus SCSI adapter, each of which has an external and an internal port. Therefore, only 1 of the ports for the same bus can be used at the same time

- ❑ If I have an older HVD (high-voltage differential) external SCSI tape drive, is there an adapter for it for AIX 5L on eServer i5?

Yes, the 6204. All other supported SCSI adapters (such as the 0627 or 0645) are LVD



List of Supported Hardware



IBM @server i5 520 IBM @server i5 550 IBM @server i5 570
 9406-520 9406-550 9406-570
 rack drawer; deskside rack drawer; deskside rack drawer

Operating System			
AIX 5L v5.2	Y	Y	Y
AIX 5L v5.3	Y	Y	Y
Capacity on Demand Features	N	Y	Y
Storage Interfaces			
0628 Direct Attach 5703 PCI-X SCSI RAID Disk Unit Controller	Y	Y	Y
0627 Direct Attach 2780 PCI-X Ultra4 RAID Disk Controller	Y	Y	Y
5709 RAID Enabler Card	Y	Y	Y
0625 Direct Attach 5704 2 Gigabit Fibre Channel PCI-X	Y	Y	Y
0645 Direct Attach 5712 PCI-X Tape Controller	Y	Y	Y
6203 PCI-3 SCSI Adapter	N	Y	Y
6204 Differential SCSI Adapter	Y	Y	Y
0611 Direct Attach 2765 Fibre Channel Tape Controller	Y	Y	Y
0642 PCI Ultra 3 Raid Adapter	Y	Y	Y
0638 PCI 40MB SSA Adapter	N	N	Y
0639 128MB DIMM SSA Adapter Memory	N	N	Y
0640 32MB Non-volatile Fast Write Cache for 6225 and 6230	N	N	Y
Communications, Connectivity and Encryption			
0637 10/100 Mbps 4-port Ethernet Adapter	N	N	Y
0620 Direct Attach 5700 PCI 1 Gbps Ethernet IOA	Y	Y	Y
0621 Direct Attach 5701 PCI 1 Gbps Ethernet UTP IOA	Y	Y	Y
2943 8 Port Async Adapter	Y	Y	Y
0635 SDLC/X.25-2 port Adapter	Y	Y	Y
2947 PCI Multiprotocol Adapter	Y	Y	Y
4960 Cryptographic Accelerator	N	N	Y
4963 Cryptographic Co-processor	N	N	Y
0634 Direct Attach 2944 128 port Async Adapter	Y	Y	Y
8136 Remote Async Node (Rack)	Y	Y	Y
8137 RS232 Remote Async Node	Y	Y	Y
6312 Quad Digital Trunk Adapter	Y	Y	N
4959 PCI 16/4 Mbps Token-Ring IOA	Y	Y	Y
4953 155Mbps UTP ATM Adapter	N	N	Y
4957 155Mbps ATM Fibre Adapter	N	N	Y
2946 PCI 622 Mbps ATM Fibre Adapter	N	N	Y
5718 10 Gbps Ethernet Adapter	Y	Y	Y
4962 PCI 100/10 Mbps Ethernet IOA	Y	Y	Y
2732 PCI Serial HIPPI Adapter	N	N	Y



List of Supported Hardware



IBM @server i5 520 9406-520 rack drawer; deskside	IBM @server i5 550 9406-550 rack drawer; deskside	IBM @server i5 570 9406-570 rack drawer
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	IBM @server i5 520 9406-520 rack drawer; deskside	IBM @server i5 550 9406-550 rack drawer; deskside	IBM @server i5 570 9406-570 rack drawer
Displays and Display Adapters *			
0632 USB 2.0 Adapter	Y	Y	Y
0633 Graphics Adapter	Y	Y	Y
1876 20" Flat Panel Monitor	Y	Y	Y
3637 15" Color Monitor	Y	Y	Y
3639 17" Color Monitor	Y	Y	Y
3628 21" Color Monitor	N	N	Y
3638 21" Color Monitor	Y	Y	Y
2737 4-port USB 1.1 Adapter	N	N	Y
8841 USB Mouse and Cable to Keyboard	Y	Y	Y
88XX/187X Keyboard	Y	Y	Y
8244 PCI WS Audio Adapter	Y	Y	N
2848 PCI 2D Entry Graphics Adapter	Y	Y	Y
6546-00E/00N/01E/01S/0AE/0AN/0BE/0BN/0BS/21N/2BN/31N/4AN/6BN Display	Y	Y	Y
Storage and Storage Subsystems			
4326/7508 35.16 GB 15K rpm Disk Unit	Y	Y	Y
4327/7509 70.56 GB 15K rpm Disk Unit	Y	Y	Y
4328/7510 141 GB 15K rpm Disk Unit	Y	Y	Y
1893 36.4 GB 10K rpm Disk Unit	Y	Y	Y
1894 73.4 GB 10K rpm Disk Unit	Y	Y	Y
1895 146.8 GB 10K rpm Disk Unit	Y	Y	Y
1896 36.4 GB 15K rpm Disk Unit	Y	Y	Y
1897 73.4 GB 15K rpm Disk Unit	Y	Y	Y
2591 External 1.44 GB Diskette Drive	Y	Y	Y
Expansion Towers			
5094/5294 PCI-x Expansion Tower	Y	Y	Y
5095/0595 PCI-x Expansion Tower	Y	Y	Y
7311-D10 I/O Drawer	N	N	Y
7311-D20 I/O Drawer	Y	Y	Y
Fibre Channel Directors, Switches, Hubs and Routers			
2031-016/032/216/224/232/L00 McDATA Fibre Channel Switch	Y	Y	Y
2032-001/064/140 McDATA Fibre Channel Director	Y	Y	Y
3534-F08 SAN Switch	Y	Y	Y



List of Supported Hardware



IBM @server i5 520 9406-520 rack drawer; deskside
IBM @server i5 550 9406-550 rack drawer; deskside
IBM @server i5 570 9406-570 rack drawer

Optical Drives and Libraries	IBM @server i5 520	IBM @server i5 550	IBM @server i5 570
2640 DVD-ROM	Y	Y	Y
5751 DVD-RAM	Y	Y	Y
7210-020 CD-ROM Drive	Y	Y	Y
7210-025 DVD-RAM Drive	Y	Y	Y
7210-030 DVD Drive	Y	Y	Y
3995-X63/C6X Optical Library	Y	Y	Y
Tape Drives			
1889 80/160 GB Tape Drive	Y	Y	N
5753 QIC 30 GB Tape	Y	Y	N
5754 QIC 50 GB Tape	Y	Y	N
6134 60/150 GB 8 mm Tape Unit	Y	Y	N
6258 36/72 GB 4 mm Tape Unit	Y	Y	N

- List is still being expanded, but almost all announced and supported adapters are included
- Same applies to LVT: support is already there for almost all such adapters
- One omission from this list: 5706 2-port Gbit Ethernet Adapter (present in LVT)



Example Configuration 1



❑ Customer requirement:

- Upgrade existing iSeries 825 i5/OS for line-of-business (LOB) application
- Consolidate Temenos Global DB and Temenos Web Front AIX 5L applications from existing pSeries hardware onto eServer i5

❑ Hardware requirement:

LPAR 1: iSeries LOB Applications

1 x 570 CEC - 4 processors to be priced as the minimum allowed although only 2 processors will be allocated

HMC Console

16GB Memory

Embedded Disk Controller

Embedded Ethernet adapter

2 x 35.16GB drives - Mirrored

6 x 2844 IOP

4 x 2787 Fibre Channel Disk Controller **(for external ESS storage)**

2 x 5704 Fibre Channel Tape Controller **(for external tape backup)**

2 x 2849 Ethernet IOA

1 x 9710 Base IXS

LPARs 2 and 3: Temenos Globus DB and Web Front

4 Processors

12 GB RAM

4 x Gbit Fibre Channel Adapter (2 * Tape / 2 * Disk) (#0625/5704) **(for external ESS storage and tape backup)**

4 x 10/100/1000BaseT Ethernet Adapter (#0621/5701, I assume, not 4 of the 2-port #5706)

4 x 36 GB Disk Drives (Mirrored across a pair of controllers 2 x 2) (FC #1896 -- 36.4GB, 15K RPM)

2 x 0627 (2780) Disk controllers

1 x 5712 controller (for external DVD, switchable to LPAR 3)



Example Configuration 1



LPARValidator - C:\Documents and Settings\Administrator\Desktop\AIX on POWER5\Sample eServer i5 570 with AIX...

File Edit Report Validate Help

OS Level for Part Selection: V5R3M0

OS400 AIX

- IOPs
- INS/IXS
- Disk IOAs
- Magnetic Media IOAs
- LAN IOAs
- COMM / WAN IOAs
- Disk Drives
- CD/DVD
- Internal tape
- HSL/RIO Adapters

Add/Remove	Slot	IOP/IOA/Dev	Partition	Exists	Description
Remove	P3	4326x2	P1/i5 - EMB	<input type="checkbox"/>	35.16GB 15k RPM Dis...
Add	P3(a)		P1/i5 - EMB	<input type="checkbox"/>	Disk Drives
Remove	P4	2640	P1/i5 - EMB	<input type="checkbox"/>	IDE DVDROM
Add	C06		P1/i5	<input type="checkbox"/>	IOA
Add	C05		P1/i5	<input type="checkbox"/>	IOP/IOA
Remove	C04	0625	P3/Web	<input type="checkbox"/>	Fibre Channel Tape C...
Remove	C03	0621	P3/Web	<input type="checkbox"/>	1 Gbps Ethernet (#5701)
Remove	EMBE	EETH	P1/i5	<input type="checkbox"/>	Embedded 1 Gbps Eth...
Remove	EMB	5709	P1/i5	<input type="checkbox"/>	32MB Planar RAID Fea...
Remove	C02	9793	P1/i5	<input type="checkbox"/>	Base 2-Line WAN w/Int...
Remove	C01	9844	P1/i5	<input type="checkbox"/>	Base 64 MB IOP

Data successfully saved to file C:\Documents and Settings\Administrator\Desktop\AIX on POWER5\Sample eServer i5 570 with AIX.xml.



Example Configuration 1



LPARValidator - C:\Documents and Settings\Administrator\Desktop\AIX on POWER5\Sample eServer i5 570 with AIX....

File Edit Report Validate Help

OS Level for Part Selection: V5R3M0

OS400 AIX

- IOPs
- INS/IXS
- Disk IOAs
- Magnetic Media IOAs
- LAN IOAs
- COMM / WAN IOAs
- Disk Drives
- CD/DVD
- Internal tape
- HSL/RIO Adapters

Add/Remove	Slot	IOP/IOA/Dev	Partition	Exists	Description
Add	P3		P1/i5	<input type="checkbox"/>	D01, D02, D03, D04, D...
Add	P4		P1/i5	<input type="checkbox"/>	IDE DVDROM
Add	C06		P1/i5	<input type="checkbox"/>	IOA
Add	C05		P1/i5	<input type="checkbox"/>	IOP/IOA
Remove	C04	0625	P3/Web	<input type="checkbox"/>	Fibre Channel Tape C...
Remove	C03	0621	P3/Web	<input type="checkbox"/>	1 Gbps Ethernet (#5701)
Remove	EMBE	EETH	P1/i5	<input type="checkbox"/>	Embedded 1 Gbps Eth...
Remove	EMB	5709	P1/i5	<input type="checkbox"/>	32MB Planar RAID Fea...
Add	C02		P1/i5	<input type="checkbox"/>	IOA
Remove	C01	2844	P1/i5	<input type="checkbox"/>	64 MB IOP

Warning - Tower 0595-3 has a base 9844 that is not placed in a valid IOP slot.
Warning - Tower 0595-4 has a base 9844 that is not placed in a valid IOP slot.



Example Configuration 1



LPARValidator - C:\Documents and Settings\Administrator\Desktop\AIX on POWER5\Sample eServer i5 570 with AIX....

File Edit Report Validate Help

OS Level for Part Selection: V5R3M0

OS400 AIX

- IOPs
- INS/IXS
- Disk IOAs
- Magnetic Media IOAs
- LAN IOAs
- COMM / WAN IOAs
- Disk Drives
- CD/DVD
- Internal tape
- HSL/RIO Adapters

Add/Remove	Slot	IOP/IOA/Dev	Partition	Exists	Description
Add	P3		P1/i5 - EMB	<input type="checkbox"/>	D01, D02, D03, D04, D...
Add	P4		P1/i5 - EMB	<input type="checkbox"/>	IDE DVDROM
Add	C06		P1/i5	<input type="checkbox"/>	IOA
Add	C05		P1/i5	<input type="checkbox"/>	IOP/IOA
Remove	C04	0625	P2/Temenos	<input type="checkbox"/>	Fibre Channel Tape C...
Remove	C03	0621	P2/Temenos	<input type="checkbox"/>	1 Gbps Ethernet (#5701)
Remove	EMBE	EETH	P1/i5	<input type="checkbox"/>	Embedded 1 Gbps Eth...
Remove	EMB	5709	P1/i5	<input type="checkbox"/>	32MB Planar RAID Fea...
Remove	C02	0621	P2/Temenos	<input type="checkbox"/>	1 Gbps Ethernet (#5701)
Remove	C01	0625	P2/Temenos	<input type="checkbox"/>	Fibre Channel Tape C...

Warning - Tower 0595-3 has a base 9844 that is not placed in a valid IOP slot.
Warning - Tower 0595-4 has a base 9844 that is not placed in a valid IOP slot.



Example Configuration 1



LPARValidator - C:\Documents and Settings\Administrator\Desktop\AIX on POWER5\Sample eServer i5 570 with AIX....

File Edit Report Validate Help

OS Level for Part Selection: V5R3M0

OS400 AIX

- IOPs
- INS/IXS
- Disk IOAs
- Magnetic Media IOAs
- LAN IOAs
- COMM / WAN IOAs
- Disk Drives
- CD/DVD
- Internal tape
- HSL/RIO Adapters

Add/Remove	Slot	IOP/IOA/Dev	Partition	Exists	Description
Add	C15		P1/i5	<input type="checkbox"/>	IOA
Add	C14		P1/i5	<input type="checkbox"/>	IOP/IOA
Remove	C13	2849	P1/i5	<input type="checkbox"/>	100/10 Mbps Ethernet
Remove	C12	5704	P1/i5	<input type="checkbox"/>	Fiber Channel Tape Ctr
Remove	C11	2844	P1/i5	<input type="checkbox"/>	64 MB IOP
Remove	C09	2787	P1/i5	<input type="checkbox"/>	Fiber Channel Disk Ctr
Remove	C08	2844	P1/i5	<input type="checkbox"/>	64 MB IOP
Add	C07		P1/i5	<input type="checkbox"/>	IOP/IOA
Add	C06		P1/i5	<input type="checkbox"/>	IOP/IOA
Remove	C05	9710	P1/i5	<input type="checkbox"/>	Base Integrated xSerie...
Add	C04		P1/i5	<input type="checkbox"/>	IOA
Add	C03		P1/i5	<input type="checkbox"/>	IOP/IOA
Remove	C02	2787	P1/i5	<input type="checkbox"/>	Fiber Channel Disk Ctr
Remove	C01	2844	P1/i5	<input type="checkbox"/>	64 MB IOP

Warning - Tower 0595-3 has a base 9844 that is not placed in a valid IOP slot.
Warning - Tower 0595-4 has a base 9844 that is not placed in a valid IOP slot.



Example Configuration 1



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- CD/DVD
- Internal tape
- HSL/RIO Adapters

Add/Remove	Slot	IOP/IOA/Dev	Partition	Exists	Description
Add	C15		P1/i5	<input type="checkbox"/>	IOA
Add	C14		P1/i5	<input type="checkbox"/>	IOP/IOA
Remove	C13	2849	P1/i5	<input type="checkbox"/>	100/10 Mbps Ethernet
Remove	C12	5704	P1/i5	<input type="checkbox"/>	Fiber Channel Tape Ctr
Remove	C11	2844	P1/i5	<input type="checkbox"/>	64 MB IOP
Add	C09		P1/i5	<input type="checkbox"/>	IOA
Add	C08		P1/i5	<input type="checkbox"/>	IOP/IOA
Add	C07		P1/i5	<input type="checkbox"/>	IOP/IOA
Remove	C06	2787	P1/i5	<input type="checkbox"/>	Fiber Channel Disk Ctr
Remove	C05	2844	P1/i5	<input type="checkbox"/>	64 MB IOP
Add	C04		P1/i5	<input type="checkbox"/>	IOA
Add	C03		P1/i5	<input type="checkbox"/>	IOP/IOA
Remove	C02	2787	P1/i5	<input type="checkbox"/>	Fiber Channel Disk Ctr
Remove	C01	2844	P1/i5	<input type="checkbox"/>	64 MB IOP

Warning - Tower 0595-3 has a base 9844 that is not placed in a valid IOP slot.
Warning - Tower 0595-4 has a base 9844 that is not placed in a valid IOP slot.



Example Configuration 1



LPARValidator - C:\Documents and Settings\Administrator\Desktop\AIX on POWER5\Sample eServer i5 570 with AIX....

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- COMM / WAN IOAs
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- CD/DVD
- Internal tape
- HSL/RIO Adapters

Add/Remove	Slot	IOP/IOA/Dev	Partition	Exists	Description
Remove	DB2	1896x2	P2/Temenos - C03	<input type="checkbox"/>	36.4GB 15k RPM Disk ...
Add	DB2(a)		P2/Temenos - C03	<input type="checkbox"/>	Disk Drives
Remove	DB1	1896x2	P2/Temenos - C02	<input type="checkbox"/>	36.4GB 15k RPM Disk ...
Add	DB1(a)		P2/Temenos - C02	<input type="checkbox"/>	Disk Drives
Remove	C08	0621	P2/Temenos	<input type="checkbox"/>	1 Gbps Ethernet (#5701)
Remove	C07	0625	P2/Temenos	<input type="checkbox"/>	Fibre Channel Tape C...
Remove	C06	0625	P2/Temenos	<input type="checkbox"/>	Fibre Channel Tape C...
Remove	C04	0621	P2/Temenos	<input type="checkbox"/>	1 Gbps Ethernet (#5701)
Remove	C03	0627	P2/Temenos	<input type="checkbox"/>	Disk Unit Ctr (#2780)
Remove	C02	0627	P2/Temenos	<input type="checkbox"/>	Disk Unit Ctr (#2780)
Remove	C01	0645	P2/Temenos	<input type="checkbox"/>	Disk/Tape Unit Ctr (57...

Warning - Tower 0595-3 has a base 9844 that is not placed in a valid IOP slot.
Warning - Tower 0595-4 has a base 9844 that is not placed in a valid IOP slot.



Example Configuration 1



LPARValidator - C:\Documents and Settings\Administrator\Desktop\AIX on POWER5\Sample eServer i5 570 with AIX....

File Edit Report Validate Help

OS Level for Part Selection: V5R3M0

OS400 AIX

- IOPs
- INS/IXS
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- LAN IOAs
- COMM / WAN IOAs
- Disk Drives
- CD/DVD
- Internal tape
- HSL/RIO Adapters

Add/Remove	Slot	IOP/IOA/Dev	Partition	Exists	Description
Remove	DB2	1896x2	P3/Web - C03	<input type="checkbox"/>	36.4GB 15k RPM Disk ...
Add	DB2(a)		P3/Web - C03	<input type="checkbox"/>	Disk Drives
Remove	DB1	1896x2	P3/Web - C02	<input type="checkbox"/>	36.4GB 15k RPM Disk ...
Add	DB1(a)		P3/Web - C02	<input type="checkbox"/>	Disk Drives
Remove	C08	0621	P3/Web	<input type="checkbox"/>	1 Gbps Ethernet (#5701)
Remove	C07	0625	P3/Web	<input type="checkbox"/>	Fibre Channel Tape C...
Remove	C06	0625	P3/Web	<input type="checkbox"/>	Fibre Channel Tape C...
Remove	C04	0621	P3/Web	<input type="checkbox"/>	1 Gbps Ethernet (#5701)
Remove	C03	0627	P3/Web	<input type="checkbox"/>	Disk Unit Ctr (#2780)
Remove	C02	0627	P3/Web	<input type="checkbox"/>	Disk Unit Ctr (#2780)
Add	C01		P1/i5	<input type="checkbox"/>	IOP/IOA/IXS

Warning - Tower 0595-3 has a base 9844 that is not placed in a valid IOP slot.
Warning - Tower 0595-4 has a base 9844 that is not placed in a valid IOP slot.

❑ Customer requirement:

- Replace existing iSeries 820 for LOB applications
- Consolidate 3 Sun servers running Oracle DB, Oracle Application Server, and another specific application

❑ Hardware requirement:

LPAR1: i5/OS

1 x 2749 for legacy tape support (HVD)
1 x 2640 for CD access
1 x 5712 for LTO tape support
1 x 4745 for WAN connectivity
3 x 4838 10/100 Ethernet for redundancy
HMC console

LPARs 2, 3, 4: Oracle DB, Oracle App Server, other application

1 x 0625 Fibre Channel Adapter (**for FASTT storage**)
1 x 5706 2-port Gigabit Ethernet Adapter
1 x 0645 (5712) Storage Controller (**switchable among all 3 AIX partitions, for external LTO tape and DVD access**)
HMC console

LPARValidator - C:\Documents and Settings\Administrator\Desktop\AIX on POWER5\Sample eServe...

File Edit Report Validate Help

OS Level for Part Selection: V5R3M0

OS400 AIX

- Disk IOAs
- LAN IOAs
- WAN IOAs
- Async IOAs
- System IOAs
- Serial IOAs
- Fiber IOAs
- Graphic IOAs
- Misc IOAs
- HSL/RIO Adapters
- Disk Drives
- CD/DVD
- Internal Tape

Add/Remo...	Slot	IOP/IO...	Partition	...	Description
Rem...	P2	4326x4	820 1100...	<input type="checkbox"/>	35.16GB 15k RPM Disk Unit
Rem...	P3	4326x4	820 1100...	<input type="checkbox"/>	35.16GB 15k RPM Disk Unit
Add	P4D1		820 1100...	<input type="checkbox"/>	Internal Tape
Rem...	P4D2	2640	820 1100...	<input type="checkbox"/>	IDE DVDROM
Add	P4D3		820 1100...	<input type="checkbox"/>	NOT ACCESSIBLE
Rem...	C05	4745	820 1100	<input type="checkbox"/>	2 Line WAN
Rem...	C04	4838	820 1100	<input type="checkbox"/>	100/10 Mbps Ethernet
Rem...	C03	9844	820 1100	<input type="checkbox"/>	Base 64 MB IOP
Rem...	EMBE	EETH	820 1100	<input type="checkbox"/>	Embedded 1 Gbps Ethernet (2 Ports)
Rem...	EMB	5709	820 1100	<input type="checkbox"/>	32MB Planar RAID Feature Card
Rem...	C02	9793	820 1100	<input type="checkbox"/>	Base 2-Line WAN w/Integrated Modem
Rem...	C01	9844	820 1100	<input type="checkbox"/>	Base 64 MB IOP

Data successfully saved to file C:\Documents and Settings\Administrator\Desktop\AIX on POWER5\Sample eServer i5 550 with AIX II

LPARValidator - C:\Documents and Settings\Administrator\Desktop\AIX on POWER5\Sample eServe...

File Edit Report Validate Help

OS Level for Part Selection: V5R3M0

OS400 AIX

- Disk IOAs
- LAN IOAs
- WAN IOAs
- Async IOAs
- System IOAs
- Serial IOAs
- Fiber IOAs
- Graphic IOAs
- Misc IOAs
- HSL/RIO Adapters
- Disk Drives
- CD/DVD
- Internal Tape

9406_550-0 0595-1 0595-3

Add/Remo...	Slot	IOP/IO...	Partition	...	Description
Add	DB2		820 1100	<input type="checkbox"/>	Disk Drives
Add	DB1		820 1100	<input type="checkbox"/>	Disk Drives
Rem...	C08	4838	820 1100	<input type="checkbox"/>	100/10 Mbps Ethernet
Rem...	C07	5712	820 1100	<input type="checkbox"/>	PCI-X U320 Tape Controller
Rem...	C06	9844	820 1100	<input type="checkbox"/>	64 MB IOP
Rem...	C04	5706	APP Prod	<input type="checkbox"/>	2-port 10/100/1000Mbps Ethernet UTP
Rem...	C03	2749	820 1100	<input type="checkbox"/>	Ultra Magnetic Media Ctr
Rem...	C02	4838	820 1100	<input type="checkbox"/>	100/10 Mbps Ethernet
Rem...	C01	9844	820 1100	<input type="checkbox"/>	Base 64 MB IOP

Data successfully saved to file C:\Documents and Settings\Administrator\Desktop\AIX on POWER5\Sample eServer i5 550 with AIX II

LPARValidator - C:\Documents and Settings\Administrator\Desktop\AIX on POWER5\Sample eServe...

File Edit Report Validate Help

OS Level for Part Selection: V5R3M0

OS400 AIX

- Disk IOAs
- LAN IOAs
- WAN IOAs
- Async IOAs
- System IOAs
- Serial IOAs
- Fiber IOAs
- Graphic IOAs
- Misc IOAs
- HSL/RIO Adapters
- Disk Drives
- CD/DVD
- Internal Tape

9406_550-0 0595-1 0595-3

Add/Remo...	Slot	IOP/IO...	Partition	...	Description
Add	DB2		820 1100	<input type="checkbox"/>	Disk Drives
Add	DB1		820 1100	<input type="checkbox"/>	Disk Drives
Rem...	C08	0625	APP Prod	<input type="checkbox"/>	Fibre Channel Tape Controller (#5704)
Rem...	C07	5706	Taz Prod	<input type="checkbox"/>	2-port 10/100/1000Mbps Ethernet UTP
Rem...	C06	0625	Taz Prod	<input type="checkbox"/>	Fibre Channel Tape Controller (#5704)
Rem...	C04	0645	BD Prod	<input type="checkbox"/>	Disk/Tape Unit Ctlr (5712)
Rem...	C03	0625	BD Prod	<input type="checkbox"/>	Fibre Channel Tape Controller (#5704)
Add	C02		820 1100	<input type="checkbox"/>	IOP/IOA
Rem...	C01	5706	BD Prod	<input type="checkbox"/>	2-port 10/100/1000Mbps Ethernet UTP

Data successfully saved to file C:\Documents and Settings\Administrator\Desktop\AIX on POWER5\Sample eServer i5 550 with AIX II

❑ Customer requirement:

- Replace existing iSeries 820 for LOB applications
- Consolidate 1 Oracle DB server from existing pSeries hardware, using virtual storage from i5/OS

❑ Hardware requirement:

LPAR1: i5/OS

Minimum hardware configuration
Internal disk, DVD, and tape
HMC console

LPARs 2, 3, 4: Oracle DB, Oracle App Server, other application

Virtual storage from i5/OS
1 x 5706 2-port Gigabit Ethernet Adapter
1 x 0645 (5712) Storage Controller (**for external tape and DVD access**)
HMC console

LPARValidator - C:\Documents and Settings\Administrator\Desktop\AIX on POWER5\Sample eServe...

File Edit Report Validate Help

OS Level for Part Selection: V5R3M0

OS400 AIX

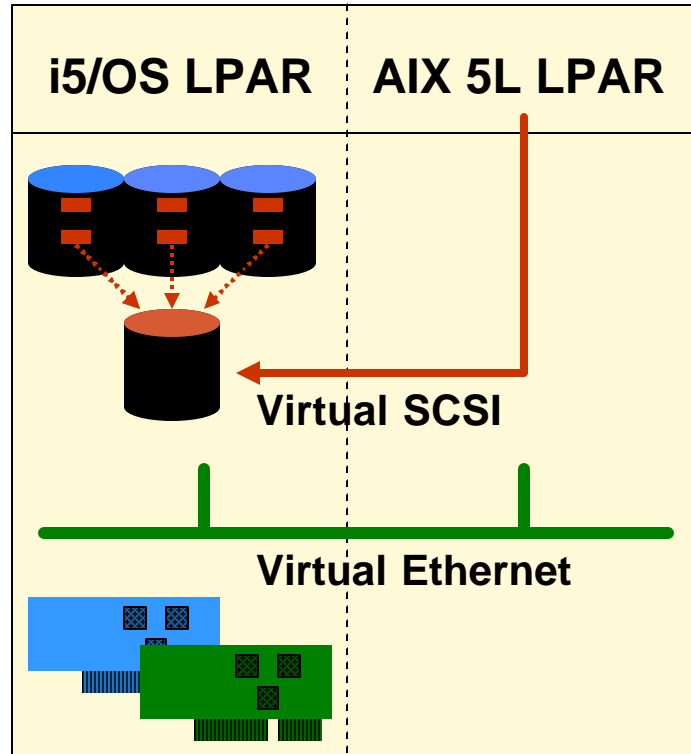
- Disk IOAs
- LAN IOAs
- WAN IOAs
- Async IOAs
- System IOAs
- Serial IOAs
- Fiber IOAs
- Graphic IOAs
- Misc IOAs
- HSL/RIO Adapters
- Disk Drives
- CD/DVD
- Internal Tape

9406_520-0

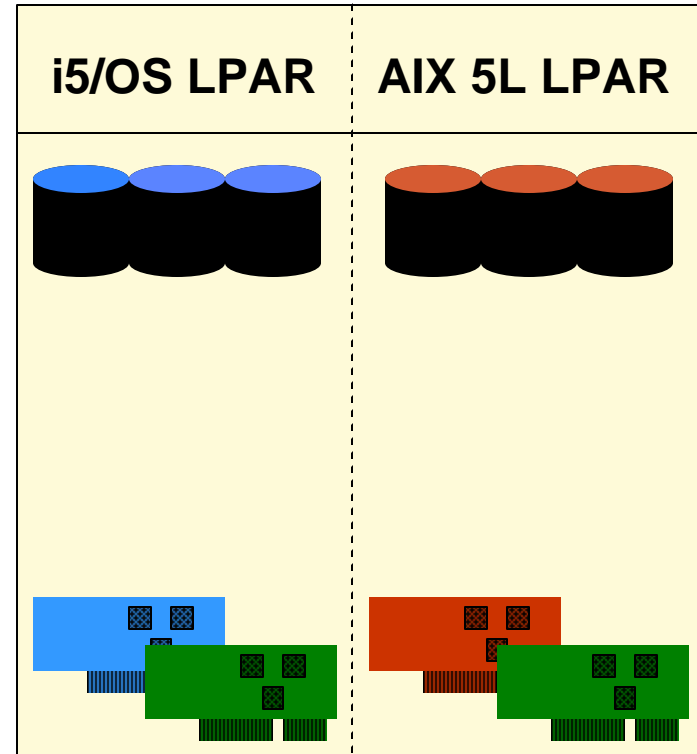
Add/Remo...	Slot	IOP/IO...	Partition	...	Description
Rem...	P2	4327x4	i5/OS - EMB	<input type="checkbox"/>	70.56GB 15k RPM Disk Unit
Rem...	P3	4327x4	i5/OS - EMB	<input type="checkbox"/>	70.56GB 15k RPM Disk Unit
Rem...	P4D1	5753	i5/OS - EMB	<input type="checkbox"/>	30GB 1/4 inch Cartridge Tape
Rem...	P4D2	2640	i5/OS - EMB	<input type="checkbox"/>	IDE DVDROM
Add	P4D3		i5/OS - EMB	<input type="checkbox"/>	NOT ACCESSIBLE
Rem...	EMBE	EETH	i5/OS	<input type="checkbox"/>	Embedded 1 Gbps Ethernet (2 Ports)
Rem...	EMB	5709	i5/OS	<input type="checkbox"/>	32MB Planar RAID Feature Card
Rem...	C06	9844	i5/OS	<input type="checkbox"/>	Base 64 MB IOP
Rem...	C03	9793	i5/OS	<input type="checkbox"/>	Base 2-Line WAN w/Integrated Modem
Add	C05		i5/OS	<input type="checkbox"/>	IOA
Add	C04		i5/OS	<input type="checkbox"/>	IOA
Rem...	C02	5706	AIX5L	<input type="checkbox"/>	2-port 10/100/1000Mbps Ethernet UTP
Rem...	C01	0645	AIX5L	<input type="checkbox"/>	Disk/Tape Unit Ctr (5712)

All partition requirements have been satisfied.

Virtual I/O

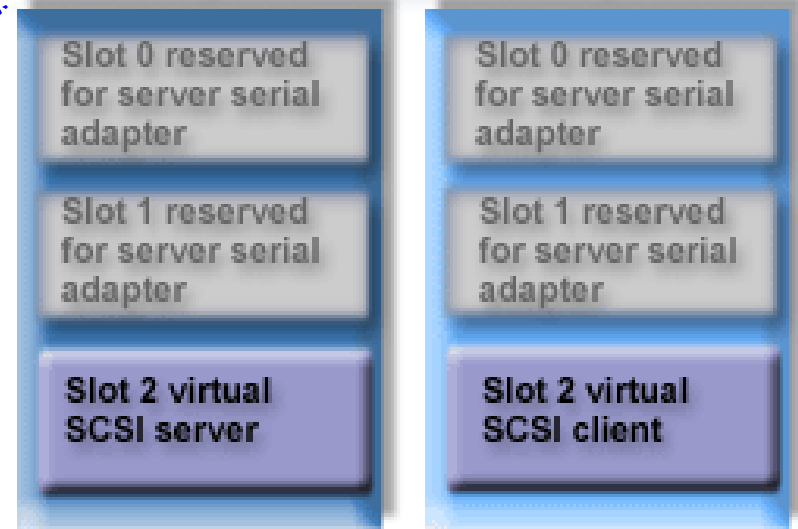
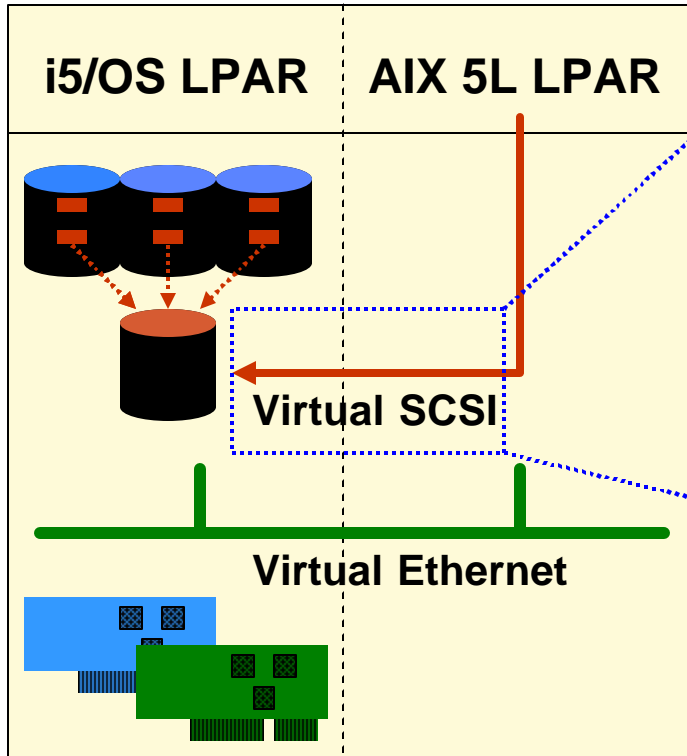


Direct I/O



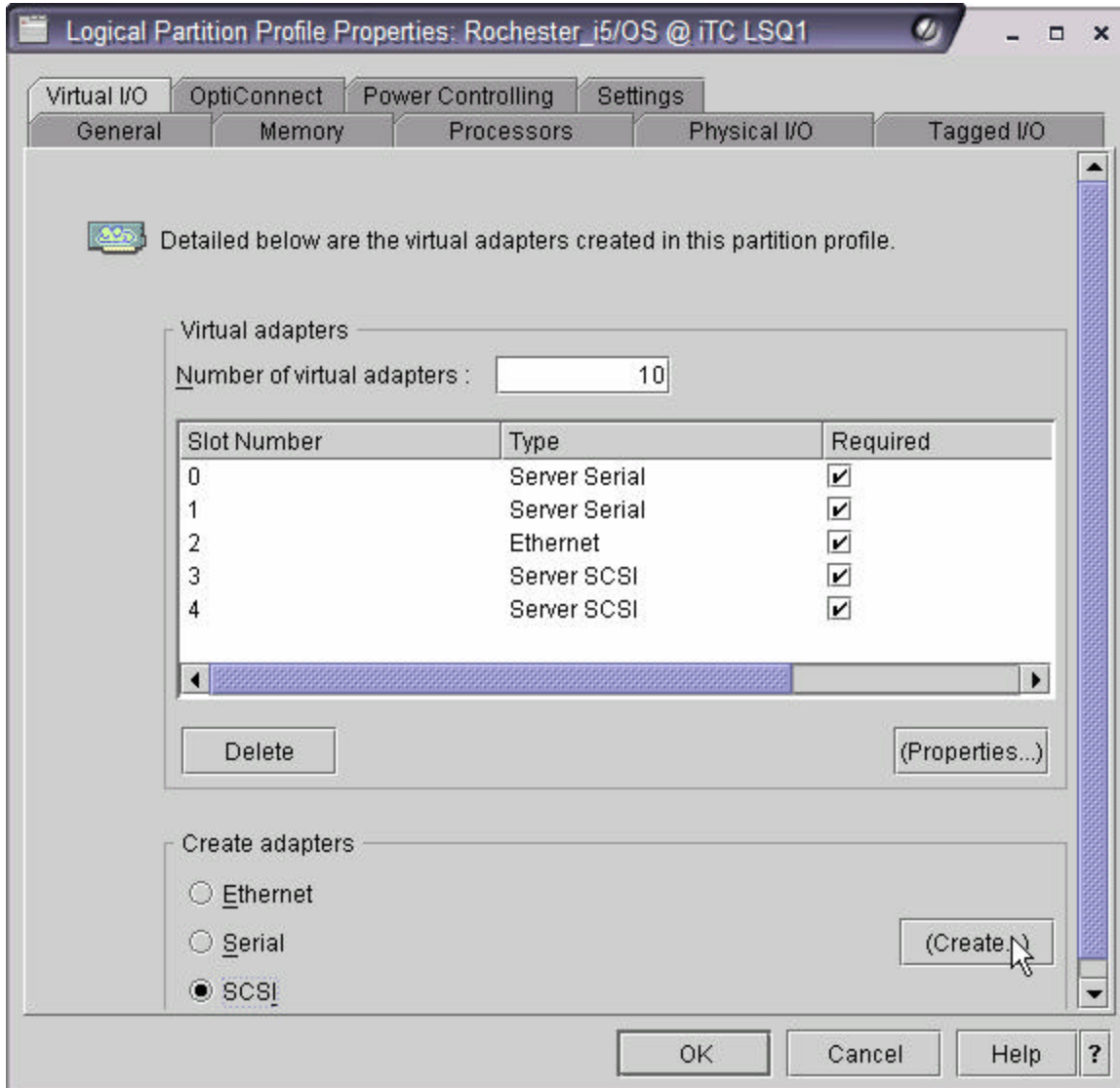
- i5/OS provides virtual disk to AIX 5L
- Improves asset utilization and ROI
- Uses the IBM Virtualization Engine

- Resources dedicated to AIX 5L
- AIX 5L management of disk, NICs
- AIX 5L independent of other LPARs



- Virtual Storage for AIX 5L on eServer p5 provided through Virtual I/O Server
- **Virtual I/O Server not supported on eServer i5**

- Virtual SCSI server and client adapters
- Configured in HMC
- Virtual disk for AIX 5L is created in IFS
- AIX 5L sees virtual disk as physical drive
- Leverage RAID-5, multiple disk arms, scatter-loading, single-level storage
- No support for Virtual CD/DVD or tape**



- Virtual SCSI server and client adapters created in partition profile

- Can be added dynamically if number of virtual slots high enough

- Virtual SCSI server adapters appear in i5/OS as type 290B under WRKHDWRSC *CMN

- Virtual disks for AIX 5L are NWSSTG objects

- AIX 5L Virtual SCSI client to i5/OS



Create Server SCSI Adapter in i5/OS



The screenshot shows the 'Logical Partition Profile Properties: Rochester_i5/OS @ ITC LSQ1' window with the 'Virtual I/O' tab selected. The 'Virtual adapters' section shows a table of adapters and a 'Virtual SCSI Adapter Properties' dialog box is open over it.

Slot Number	Type	Re
0	Server Serial	<input checked="" type="checkbox"/>
1	Server Serial	<input checked="" type="checkbox"/>
2	Ethernet	<input checked="" type="checkbox"/>
3	Server SCSI	<input checked="" type="checkbox"/>
4	Server SCSI	<input checked="" type="checkbox"/>

The 'Virtual SCSI Adapter Properties' dialog box has the following settings:

- Slot number: * 7 (circled in green)
- Adapter Type: Server
- Connection Information: Only selected remote partition and slot can connect
- Remote partition: LINUXorAIX (2)
- Remote partition virtual slot number: 2

Buttons: OK, Cancel, Help, ?

Below the dialog box, the 'Create adapters' section has SCSI selected and the '(Create...)' button is highlighted.

- Make sure server adapter slot number matches what was entered when client was created in AIX 5L or Linux partition

```

ITCLIN4
File Edit View Communication Actions Window Help

Work with Communication Resources

System: ITCLIN4

Type options, press Enter.
5=Work with configuration descriptions 7=Display resource detail

Opt Resource Type Status Text
- CMB02 268C Operational Combined function IOP
- LIN01 6B03 Operational Comm Adapter
- CMN01 6B03 Operational Comm Port
- LIN02 6B03 Operational Comm Adapter
- CMN02 6B03 Operational Comm Port
- LIN03 268C Operational LAN Adapter
- CMN03 268C Operational Ethernet Port
- CTL02 290B Operational Comm Adapter
7 CTL03 290B Operational Comm Adapter
- CMB04 5706 Operational Comm Processor
- LIN04 5706 Operational LAN Adapter
- CMN04 5706 Operational Ethernet Port
- CMN05 5706 Operational Ethernet Port

Bottom

F3=Exit F5=Refresh F6=Print F12=Cancel

Mâ a 16/003
I902 - Session successfully started
  
```

Type WRKHDWRSC *CMN, then enter option 7 against resource type 290B


```

ITCLIN4
File Edit View Communication Actions Window Help
[Icons]
Display Resource Detail
System: ITCLIN4
Resource name . . . . . : CTL03
Text . . . . . : Comm Adapter
Type-model . . . . . : 290B-001
Serial number . . . . . : 00-00000
Part number . . . . . :

Location: U9406.520.10CC86C-V2-C10

Logical address:
SPD bus:
System bus 255
System board 0
System card 0
Communications:

Press Enter to continue.
F3=Exit F5=Refresh F6=Print F12=Cancel

Mâ a 01/001
I902 - Session successfully started
  
```

“V1” indicates this resource is virtual. “C10” matches slot number in HMC



Use SCSI Server Resource in NWSD



```
ITCLIN4
File Edit View Communication Actions Window Help
Display Network Server Desc
09/13/04 16:28:13
Network server description . . . . . : AIXHA
Option . . . . . : *BASIC

Resource name . . . . . : CTL03
Network server type . . . . . : *GUEST
Online at IPL . . . . . : *YES
Vary on wait . . . . . : *NOWAIT
Shutdown timeout . . . . . : 2
Partition . . . . . : AIX3

Code page . . . . . : 437
Server message queue . . . . . : *JOBLOG
Library . . . . . :
Synchronize date and time . . . . . : *NO
IPL source . . . . . : *NWSSTG

Press Enter to continue.
F3=Exit F11=Display keywords F12=Cancel

Mâ a 01/001
I902 - Session successfully started
```

When creating NWSD, "Resource name" can be *AUTO. i5/OS will fill in correct CTLxx, if AIX 5L partition name is specified correctly (case sensitive)

```

ITCLIN4
File Edit View Communication Actions Window Help
Display Network Server Desc
09/13/04 16:28:13
Network server description . . . . . : AIXHA
Option . . . . . : *BASIC

IPL stream file . . . . . : *NONE
IPL parameters . . . . . : *NONE

Power control . . . . . : *NO
Text . . . . . : *BLANK

Bottom

Press Enter to continue.
F3=Exit F11=Display keywords F12=Cancel

Mâ a 01/001
I902 - Session successfully started
  
```

“Power control” does **NOT** have to be *YES in order for i5/OS to provide virtual disk to AIX 5L with this NWSD. Virtual storage and power controlling are separate functions now



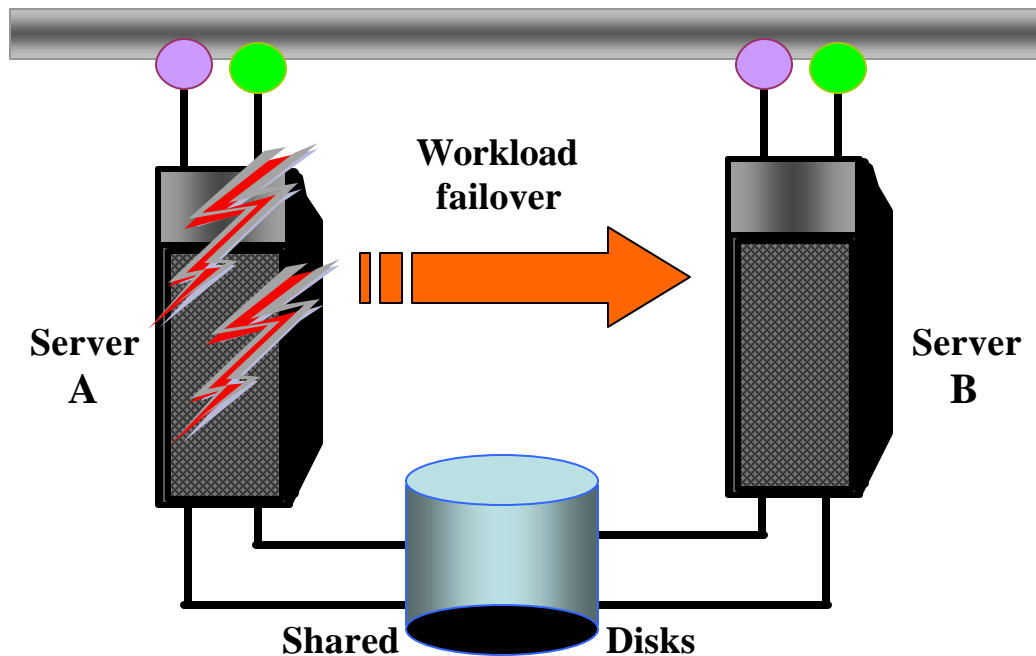
AIX 5L High Availability: HACMP

@server®

- ❑ Full title is 'High Availability Cluster Multiprocessing'
- ❑ Included with AIX 5L
- ❑ Supported on eServer i5
 - No support for Virtual I/O or micro-partitioning
- ❑ Mature product which is now at its fourteenth major release
 - HACMP Version 5.2 for AIX 5L
- ❑ Support for different disks, networks, nodes and application types
- ❑ Comprehensive support and services
 - IBM AIX® Systems Support Center (24x7 contracts available)
 - Consultancy from IBM Global Services
 - Certification program for AIX 5L Specialists
 - Mature training program from IBM Learning Services

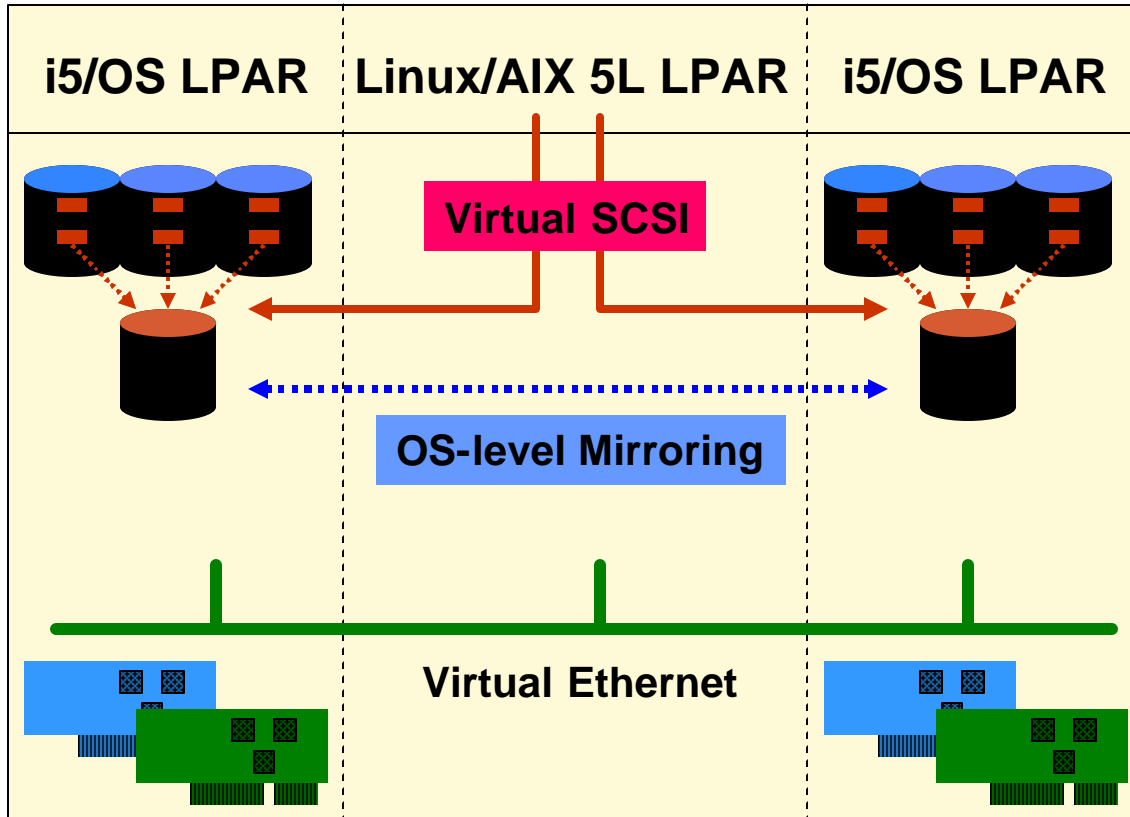
□ High Availability product that:

- Configures redundancy to **eliminate single points-of-failure**
- Automatically **detects failures** in application, hardware, storage or network
- **Failover to backups** or alternate systems
- Similar to i5/OS clustering with switched disk



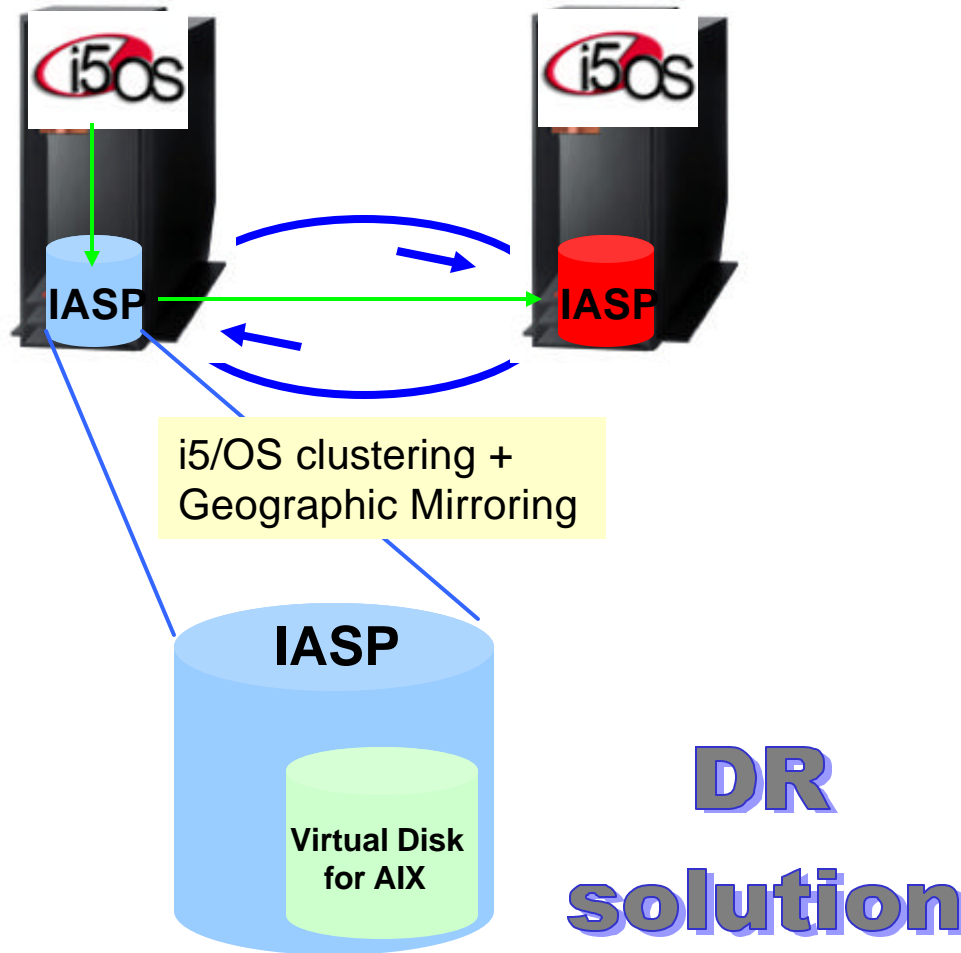


AIX 5L High Availability: Two i5/OS Hosts



HA solution

- ❑ AIX 5L partitions can access virtual disk from two or more i5/OS partitions
- ❑ Two virtual disks of equal size from separate i5/OS partitions allow mirroring of AIX 5L system disk
- ❑ Two Virtual SCSI server/client adapter pairs required, one for each i5/OS partition providing storage
- ❑ Mirroring accomplished with OS tool within AIX 5L (**mirrovg**)
- ❑ AIX 5L partition becomes highly available, able to withstand failure of either host i5/OS partition



- ❑ Cross-site mirroring (XSM):
 - i5/OS V5R3 function
 - **Geographic mirroring** one XSM function
 - Remote mirroring or “network RAID-1”
 - Works only with IASPs
 - Uses i5/OS clustering
- ❑ If AIX 5L virtual disk created in IASP, **geographic mirroring** will replicate AIX 5L data to backup system
- ❑ If production system fails, i5/OS clustering will handle failure notification and failover
- ❑ AIX 5L virtual disk will become available on backup system

- ❑ AIX 5L Web site: <http://www.ibm.com/series/aix>
- ❑ AIX 5L Facts and Features document
- ❑ Course AS570: Linux and AIX 5L on IBM eServer i5
- ❑ **Support through regular iSeries and pSeries channels**
- ❑ For complex AIX 5L on eServer i5 opportunities that cannot be assisted through the Web site or regular support channels, contact the Rochester Opportunity Center at: rchiroc@us.ibm.com
- ❑ pSeries and AIX 5L Information Center:
http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base/
- ❑ AIX 5L White Papers: http://www-1.ibm.com/servers/eserver/pseries/library/aix_lit.html



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