Simplify Your IT with IBM System i5 and i5/OS® V5R4

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Simplify your IT.
IBM System i5 and i5/OS V5R4

1. **Promote Solutions Innovation**
   - Add new collaborative/infrastructure solutions or enhance your business processing applications on the 520 with the Accelerator for System i5 or Capacity on Demand

2. **Simplify Your IT**
   - Maximize the flexibility to deploy the applications your business needs
   - Drive down your infrastructure server costs with BladeCenter and System i5
   - Deploy software upgrades on your schedule with new systems that run V5R3 or V5R4

- Announced 1/31/2006
- Availability 2/14/2006
# IBM System i5

## Key Changes

<table>
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<th>Processor and Max CPW</th>
<th>520</th>
<th>550</th>
<th>570</th>
<th>595</th>
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<tr>
<td>Processor and Max CPW</td>
<td>1, 1/2-way 1.9GHz POWER5+ 7,100</td>
<td>1/4-way 1.9GHz POWER5+ 14,000</td>
<td>2/16-way 2.2GHz POWER5+ 58,500</td>
<td>8/64-way 1.9GHz POWER5+ 184,000</td>
</tr>
<tr>
<td>Key Changes</td>
<td>Accelerator</td>
<td>POWER5+ Performance</td>
<td>Leading POWER5+ Performance</td>
<td>Leading POWER5 Performance</td>
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<td>CoD</td>
<td></td>
<td>New High Availability Edition</td>
<td>Simpler Structure &amp; Licensing</td>
<td>Expanded I/O</td>
</tr>
<tr>
<td>i5/OS Release</td>
<td>V5R3 &amp; V5R4</td>
<td>V5R3 &amp; V5R4</td>
<td>V5R3 &amp; V5R4</td>
<td>V5R3 &amp; V5R4</td>
</tr>
</tbody>
</table>
IBM System i5 Model 520 - 1.9GHz

- Rack mount
- 1-way or 1/2-way
- 600 to 7100 CPW
- Max 32GB memory
- Max 39TB disk
- Editions: Express Configurations, Value, Standard, Enterprise, HA, Solution
- i5/OS V5R3 with V5R3M5 SLIC or later
IBM System i5 Model 520 CEC Details – 1.9GHz

- 8 disk slots (4 optionally activated)
- 1 tape slot
- DVD drives (1 i5/OS)
- Operator Panel

- 1.9GHz POWER5+ processor
- Eight DDR2 memory slots
- Five PCI-X & one PCI-X DDR slots
- Two imbedded 10/100/1000 Mb Ethernet LANs
- Imbedded I/O controller (IOP-less capable)
- Optional write cache/RAID-5 (IOP-less capable)
- No Base IOP
- Base WAN IOA for ECS (uses PCI-X slot)
- Two HMC ports
- Optional HSL-2 loop

- DDR slot faster, but only smart IOAs (IOP-less) PCI cards can use it
- Ops Console LAN attached can use first port
- Different from 1.5/1.65 GHz model 520
IBM System i5 520 – Value and Express

- Ideal for small companies expanding systems running core business applications to add Web-enabled or groupware solutions
- Boost capacity for new applications with IBM Accelerator for System i5
- Select from the fully configurable Value Edition or 7 pre-defined Express configurations

<table>
<thead>
<tr>
<th>For Business Processing Applications</th>
<th>Web-enabled, Java &amp; Collaborative and Business Processing Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200/60  P10</td>
<td>1-way POWER5+ 1.9 GHz with L3 Cache</td>
</tr>
<tr>
<td>600/30  P5</td>
<td>3800/60  P10</td>
</tr>
<tr>
<td></td>
<td>1-way POWER5+ 1.9 GHz</td>
</tr>
<tr>
<td></td>
<td>3100/30  P5</td>
</tr>
</tbody>
</table>

- Rack* or tower
- Optional I/O processors
- Optional HSL
- Up to 32 GB memory
- Up to 39 TB disk
- Up to 10 LPARs
- i5/OS V5R3 & V5R4

* Express tower configurations may be converted to a rack
520 Product Structure – Express/Value

2005

Express/Value

L2
2400/60 P10
1000/60 P10
500/30 P05

Power5 1.5 GHz

2006

Express/Value

L2+L3
3800/60 P10
1200/60 P10
600/30 P05

L2
+ Accelerator
CoD
=

P10

3800/60
3100/30

P05

Power5+ 1.9 GHz
IBM System i5 520 – Standard Edition

- Provides mid-sized companies a system to run multiple e-business solutions
- Run Java™ & WebSphere® programs alongside groupware applications such as IBM Workplace™ and Lotus Domino™
- Delivers rapid expansion with Capacity on Demand

- Rack or tower
- Optional I/O processors & HSL
- Up to 32 GB DDR2 memory
- Up to 39 TB disk
- Up to 20 LPARs
- i5/OS V5R3 & V5R4

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<table>
<thead>
<tr>
<th>For e-business and Java Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-way</td>
</tr>
<tr>
<td>POWER5+ 1.9 GHz with L3 Cache</td>
</tr>
<tr>
<td>3800 CPW P10</td>
</tr>
<tr>
<td>1/2-way</td>
</tr>
<tr>
<td>POWER5+ 1.9 GHz with L3 Cache</td>
</tr>
<tr>
<td>3800/7100 CPW P20</td>
</tr>
</tbody>
</table>
IBM System i5 520 – Enterprise Edition

- Delivers growth and upgrade options for mid-sized companies running core business applications
- Delivers rapid expansion with Capacity on Demand
- Provides base for High Availability Edition & selected Solution Editions

### For Core Business Applications

<table>
<thead>
<tr>
<th>Model</th>
<th>Processor</th>
<th>Cache</th>
<th>LPARs</th>
<th>i5/OS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200 CPW</td>
<td>with full 5250</td>
<td>P10</td>
<td></td>
<td>V5R3 &amp; V5R4</td>
</tr>
<tr>
<td>2800 CPW</td>
<td>with full 5250</td>
<td>P10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3800/7100 CPW</td>
<td>1/2-way</td>
<td>P20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>POWER5+ 1.9 GHz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>with L3 Cache</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For e-business and Java Applications:

- Rack or tower
- Optional I/O processors
- Optional HSL
- Up to 32 GB DDR2 memory
- Up to 39 TB disk
- Up to 20 LPARs
- i5/OS V5R3 & V5R4
520 Product Structure – Standard & Enterprise

2005

Enterprise Editions

L2+L3
2w, 6000  P20
1w, 3300  P10
L2+L3
1w, 2400  P10
L2
1w, 1000  P10

Standard Editions

L2+L3
2w, 6000  P20
1w, 3300  P20
L2+L3
1w, 2400  P10
L2
1w, 1000  P10

2006

Enterprise Editions

L2+L3
1/2w, 3800/7100  P20
1w, 2800  P10
L2+L3
1w, 1200  P10

Standard Editions

L2+L3
1/2w, 3800/7100  P20
1w, 3800  P10

Power5  1.5/1.65 GHz
Power5+  1.9 GHz
IBM System i5 Model 550 - 1.9GHz

- 1/4-way
- 3800 to 14000 CPW
- Max 64GB memory
- Max 77TB disk
- Editions: Standard, Enterprise, HA, Solution, Domino
- i5/OS V5R3 with V5R3M0 SLIC or later

Rack mount

Deskside
IBM System i5 Model 550 CEC Details - 1.9GHz

- 1.9GHz POWER5+ processors
- Sixteen DDR2 memory slots
- Five PCI-X slots (4 slots if optional HSL-2 adapter)
- Two imbedded 10/100/1000 Mb Ethernet LANs
- Imbedded I/O controller (IOP-less capable)
- Optional (if mirroring) write cache/RAID-5 (IOP-less capable)
- No Base IOP
- Base WAN IOA for ECS (uses PCI-X slot)
- Two HMC ports
- One base and one optional HSL-2 loop

Different from 1.65 GHz model 550
IBM System i5 Model 570 - 2.2GHz

- 2/4-way to 8/16-way
- 8400 to 58500 CPW
- Max 512 GB memory
- Max 193TB disk
- Editions: Standard, Enterprise, HA, CBU
- i5/OS V5R3 with V5R3M0 SLIC or later

Processor enclosure
1 enclosure = 2/4-way
2 enclosures = 4/8-way
4 enclosures = 8/16-way or 2/16-way
IBM System i5 Model 570 CEC Details - 2.2GHz

- Two processor cards with 2.2GHz POWER5+ processors
- Sixteen DDR2 memory slots
- Six PCI-X slots (five if optional HSL-2 adapter)
- Two imbedded 10/100/1000 Mb Ethernet LANs
- Imbedded I/O controller (IOP-less capable)
- Optional imbedded write cache & RAID-5 (IOP-less capable)
- One base and one optional HSL-2 loop
- Two HMC ports

- No Base IOP (uses PCI-X slot)
- Base WAN (uses PCI-X slot)
- Optional Redundant Service Processor (2 enclosure and larger)

Different from 1.65 GHz model 570
System i5 570 – improved flexibility, simplified

<table>
<thead>
<tr>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.65GHz</strong></td>
<td><strong>2.2GHz</strong></td>
</tr>
<tr>
<td><strong>i5/OS licenses</strong></td>
<td><strong>i5/OS licenses</strong></td>
</tr>
<tr>
<td>1/2-w</td>
<td>2/4-w</td>
</tr>
<tr>
<td>2/4-w</td>
<td>4/8-w</td>
</tr>
<tr>
<td>5/8-w</td>
<td>8/16-w</td>
</tr>
<tr>
<td>9/12-w</td>
<td>2/16-w</td>
</tr>
<tr>
<td>13/16-w</td>
<td></td>
</tr>
<tr>
<td>2/16-w</td>
<td></td>
</tr>
</tbody>
</table>

- Simplify 2.2GHz offering
  - Drop 1/2-way
  - Replace 9/12-way & 13/16-way with 8/16-way
- Improved CoD capability
- Align i5/OS licenses and Enterprise Enablements

2004 model 570 had more base i5/OS licenses, but in 2005 changed to 1 and offset license reduction with lower price.
IBM System i5 Model 595 - 1.9GHz

- 8/16-way, 16/32-way, 32/64-way
- 26700 to 184000 CPW
- Max 2 TB memory
- Max 190 TB disk
- Editions: Standard, Enterprise, HA, CBU
- i5/OS V5R3 with V5R3M0 SLIC or later

CEC

#8294

I/O tower
IBM System i5 Model 595 CEC Details - 1.9GHz

- 1.9GHz POWER5 processors
- Sixteen DDR1 memory slots per processor book
- Seven or eight HSL loops* per processor book
- Base Fourteen PCI-X slots in #9194 I/O tower
- No Base IOP
- Base WAN IOA for ECS (uses PCI-X slot)
- Two HMC ports

* New in 2006 for both 1.65GHz and 1.9GHz model 595
Upgrades

POWER4

- 890  Enterprise & Standard
- 870  Enterprise & Standard
- 825  Enterprise & Standard
- 810  Enterprise & Standard
- 800  

POWER5+

- 595*  Enterprise & Standard
- 570  Enterprise & Standard
- 550  Enterprise & Standard
- 520  Enterprise & Standard
- 520  Value & Express

POWER5

- 595  Enterprise & Standard
- 570  Enterprise & Standard
- 550  Enterprise & Standard
- 520  Enterprise & Standard
- 520  Value & Express

* The new 595 1.9 GHz is a POWER5 processor.
Smarter IOAs (IOP-less) Direction

- IOA technology has evolved to the point where an IOA can take over the IOP as well as the IOA functionality.
- Smarter IOA benefits include
  - Avoiding cost of IOP and PCI slot to hold IOP
  - Configuration flexibility including simpler LPAR I/O
- POWER5 or later system prerequisite
Smarter IOA Rollout

More smart IOAs and controllers are planned to be introduced over time

2006 January 31
- WAN ECS
- Small cache disk controllers
- Controller for smaller internal tape, DVD, Optical
- More LAN

2005 - Crypto adapter
2004 - First LAN adapters

Future content subject to change
3 Categories of Adapters for i5/OS Partitions

- **IOP-based only**
  - Long list of existing adapters/controllers goes here
  - 4Gb Fibre Channel controllers #5761/5762
  - 5727/5728 40MB cache
    - (for 1.5/1.65GHz 520/550/570 CEC)

- **IOP-less only**
  - Today, only #5706/5707 LAN and #4608 Cryptographic adapters

- **New dual mode** (works either way in POWER5)
  - #5727/5728 40MB cache (for 1.9/2.2GHz 520/550/570 CEC)
  - #5736/5775 zero cache disk/tape controller
  - #5737/5776 90MB cache disk controller
  - #5700/6800, #5701/6801 1-port 1Gb LAN
  - #2793/9793/6803/9493 WAN IOA (IOP-less less function)
  - #2794/9794/6804/9494 WAN IOA (IOP-less less function)

If IOA plugged into PCI slot controlled by IOP, IOA will automatically use IOP-based mode.
# RAID-5 vs RAID-6

<table>
<thead>
<tr>
<th></th>
<th>RAID-5</th>
<th>RAID-6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection</td>
<td>1 additional disk drive per RAID array</td>
<td>2 additional disk drives per RAID array</td>
</tr>
<tr>
<td>Minimum size array</td>
<td>3 disk</td>
<td>4 disk</td>
</tr>
<tr>
<td>Maximum size array</td>
<td>18 disk</td>
<td>18 disk</td>
</tr>
<tr>
<td>Supporting disk controllers</td>
<td>#5709/5726/5727/5728 (CEC), #5703, #2757/5581, #2780/5580, #5737/0648, #4778, etc, etc</td>
<td>#5737/0648/5776</td>
</tr>
<tr>
<td>Supporting i5/OS</td>
<td>Lots of releases</td>
<td>V5R3 or later</td>
</tr>
<tr>
<td>Performance implication</td>
<td>Known</td>
<td>Similar to 5703 running RAID-5</td>
</tr>
</tbody>
</table>
2006 Disk Protection Options - Add RAID-6

**RAID-5 / RAID-6**

- Processor
- Main Storage
- Bus
- I/O Processor
- I/O Adapter, Cache
- Disks

**RAID-5 plus write cache protection for 2780/2757 controllers**

- Processor
- Main Storage
- Bus
- I/O Processor
- I/O Adapter, Cache
- I/O Processor
- Disks

**Mirroring**

- Processor
- Main Storage
- Bus
- I/O Processor
- I/O Adapter, Cache
- Disks

*Multiple Components Protected by i5/OS Mirroring*

If not mirroring disk controllers, aux write cache makes sense.

**Single Unit failure protected by RAID-5. Extended outage protection by auxiliary cache**

**Single/Double Unit failure protected by RAID-5/RAID-6 (per array)**
# VX-320 Internal Tape Drive

New VXA technology
- Up to 2x capacity
- Up to 2x speed
QIC / LTO Alternative

## Cartridge Capacity

<table>
<thead>
<tr>
<th></th>
<th>520/550 CEC FC #</th>
<th>5094 5294 FC #</th>
<th>Native@ Speed</th>
<th>Cartridge Capacity</th>
<th>Price*</th>
<th>Automation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Uncompressed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LTO-2</td>
<td>#5755</td>
<td>--</td>
<td>24 MBps</td>
<td>200GB</td>
<td>5200</td>
<td>No</td>
</tr>
<tr>
<td>VX-320</td>
<td>#6279</td>
<td>--</td>
<td>12 MBps</td>
<td>160GB</td>
<td>1500</td>
<td>no</td>
</tr>
<tr>
<td>VX-2</td>
<td>#1889</td>
<td>#4685</td>
<td>6 MBps</td>
<td>80GB</td>
<td>999</td>
<td>no</td>
</tr>
<tr>
<td>QIC 50</td>
<td>#5754</td>
<td>#4687</td>
<td>5 MBps</td>
<td>50GB</td>
<td>6000</td>
<td>No</td>
</tr>
<tr>
<td>QIC 30</td>
<td>#5753</td>
<td>#4686</td>
<td>4 MBps</td>
<td>30GB</td>
<td>4000</td>
<td>no</td>
</tr>
</tbody>
</table>

@ Native uses uncompressed cartridge/data
* Planned USA List price, Varies by country, Subject to change,
# typical compression. Actual varies

VXA-2 was $2,495
VXA-320 Detail  (Assuming i5/OS)

- Supported on POWER5 systems (not pre-POWER5)
- Supported with i5/OS V5R3 with V5R3M0 LMC or later
- Driven by SCSI controller with LVD interface
- #6279 VXA-320 in 520/550 CEC driven by imbedded disk/tape controller
  - IOP-based in 1.5/1.65GHz CECs
  - IOP-based or IOP-less in 1.9GHz CEC depending on configuration

<table>
<thead>
<tr>
<th>Media Compatibility</th>
<th>VXA-320 drive</th>
<th>VXA-2 drive</th>
<th>VXA-1 drive</th>
</tr>
</thead>
<tbody>
<tr>
<td>40GB VXA cartridge</td>
<td>Read</td>
<td>Read/Write</td>
<td>Read/Write</td>
</tr>
<tr>
<td>80GB VXA cartridge</td>
<td>Read/Write</td>
<td>Read/Write</td>
<td>NA</td>
</tr>
<tr>
<td>160GB VXA cartridge</td>
<td>Read/Write</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

* Same data cartridge used for VXA-2, just written more densely
**Product Preview**: System i5 Integration of xSeries and BladeCenter via iSCSI

- **New iSCSI Host Bus Adapter (HBA) for System i5**
- **Will enable integration of selected xSeries and BladeCenter to System i5 via industry-standard Ethernet network technology**
  - Requires an iSCSI HBA in each xSeries or Blade server and a 1 Gb Ethernet switch
  - Requires i5/OS V5R4 and a POWER5-based system
  - Will support Windows Server 2003 running on xSeries or Blade servers
- **Extends value of i5/OS to Windows applications**
  - Exploit System i5 virtual storage, networking, tape and DVD resources to centralize and manage Windows storage
  - Streamline and simplify communication between Windows, Linux and i5/OS applications and DB2 UDB data
  - Integrate i5/OS and Windows operations backup

*Previews provide insight into IBM plans and directions. All statements regarding IBM’s plans, directions, and intent are subject to change without notice.*
Potential Benefits of Integration via iSCSI vs. IXS/IXA*

- More xSeries on System i5
- BladeCenter connection
- Lower incremental cost
- Broader range of supported xSeries servers
- Utilize TCP/IP skills to install & configure
- Leverage industry standards
- Flexible options for redundancy and performance

*Previews provide insight into IBM plans and directions. All statements regarding IBM’s plans, directions, and intent are subject to change without notice.
## Minimum i5/OS Requirements

<table>
<thead>
<tr>
<th></th>
<th>Minimum i5/OS release for system</th>
<th>Minimum i5/OS release supporting IOP-less CEC*</th>
<th>Minimum i5/OS release supporting latest IOP-less I/O adapters in I/O towers/drawers **</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.5/1.65 GHz</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>520</td>
<td>V5R3 w/ V5R3M0 LIC</td>
<td>none</td>
<td>V5R4</td>
</tr>
<tr>
<td>550</td>
<td>V5R3 w/ V5R3M0 LIC</td>
<td>none</td>
<td>V5R4</td>
</tr>
<tr>
<td>570</td>
<td>V5R3 w/ V5R3M0 LIC</td>
<td>none</td>
<td>V5R4</td>
</tr>
<tr>
<td>595</td>
<td>V5R3 w/ V5R3M0 LIC</td>
<td>V5R4 ***</td>
<td>V5R4</td>
</tr>
<tr>
<td><strong>1.9/2.2 GHz</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>520</td>
<td>V5R3 w/ V5R3M5 LIC</td>
<td>V5R3 with V5R3M5 LIC</td>
<td>V5R3 with V5R3M5 LIC</td>
</tr>
<tr>
<td>550</td>
<td>V5R3 w/ V5R3M0 LIC</td>
<td>V5R4</td>
<td>V5R4</td>
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<tr>
<td>570</td>
<td>V5R3 w/ V5R3M0 LIC</td>
<td>V5R4</td>
<td>V5R4</td>
</tr>
<tr>
<td>595</td>
<td>V5R3 w/ V5R3M0 LIC</td>
<td>V5R4</td>
<td>V5R4</td>
</tr>
</tbody>
</table>

* IOP-less CEC definition: The absence of an IOP in the 520/550/570 CEC driving the imbedded disk/DVD/tape controller.

** Does NOT apply to previously announced IOP-less #5706/5707 LAN and #4806 Cryptographic Adapters.

*** Refers to primary I/O tower, #9194 or lower half of #8294

1.9/2.2GHz PTF requirement for i5/OS V5R3: CUM = C6045530 (1.9GHz 520 after installing media)
Firmware and LIC -- Basic Terminology

- **Firmware** (also known as hypervisor or PHYP (pronounced p-hype) because of one of the major firmware components). It technically is also a form of licensed internal code.
  - Components run on both the system and the HMC
  - Updates = Releases, Service Packs (SP), (Fix packs / CUM packs have also been used instead of service packs)
  - Latest release (Feb 2006) = SF240

- **SLIC** (System Licensed Internal Code). Also known as LIC or LMC (Licensed Machine Code).
  - Order as: V5R3M0, V5R3M5 (i5/OS V5R3 runs on either V5R3M0 LIC or V5R3M5 LIC.), V5R4M0
  - Updates = PTFs, CUM tapes
  - Latest (2/06) = V5R4

- **SLIC** (System Licensed Internal Code). Also known as LIC or LMC (Licensed Machine Code).
  - Order as: V5R3M0, V5R3M5 (i5/OS V5R3 runs on either V5R3M0 LIC or V5R3M5 LIC.), V5R4M0
  - Updates = PTFs, CUM tapes
  - Latest (2/06) = V5R4

- **AIX or Linux**

- **i5/OS**

- **SLIC**

- **FIRMWARE**

- **HARDWARE**

**Applications**
Firmware History – Releases & Service Packs

<table>
<thead>
<tr>
<th>HMC release level</th>
<th>System Firmware (SF)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sometimes called</td>
</tr>
<tr>
<td>V5R2</td>
<td>GA7</td>
</tr>
<tr>
<td>V5R1</td>
<td>GA6</td>
</tr>
<tr>
<td>V4R5</td>
<td>GA5</td>
</tr>
<tr>
<td>V4R5</td>
<td>GA4</td>
</tr>
<tr>
<td>V4R3</td>
<td>GA3</td>
</tr>
<tr>
<td>V4R2</td>
<td>GA2</td>
</tr>
<tr>
<td>V4R1</td>
<td>GA1</td>
</tr>
</tbody>
</table>

HMC fix is equivalent to service pack structure not shown
Introducing i5/OS V5R4

http://www-03.ibm.com/servers/eserver/support/iseries/planning/upgrade/index.html

Simplify your IT.
Promote Solutions Innovation

- Help companies exploit new business opportunities with proven, industry-specific solutions
- Integrate people, data and processes from multiple sources across a company’s value chain
- Provide better access to information to help increase productivity of employees and improve responsiveness to customers
- Enable ISVs to integrate with IBM middleware and a broad range of popular open tools
### IBM System i5 Initiative for Innovation

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<tr>
<th>Application Innovation</th>
<th>Tools Innovation</th>
<th>System i5 Innovation</th>
</tr>
</thead>
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<td>Free support</td>
<td>Open ecosystem</td>
<td>Technical consultants</td>
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<tr>
<td>Free virtual loaner program</td>
<td>IBM endorsement</td>
<td>Advisory board for System i5 roadmap</td>
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<td>Open developer roadmap</td>
<td>Technical reviews</td>
<td>Industry enablement</td>
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<td>Free educational offerings</td>
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<tr>
<td>Free conversion assistance</td>
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### IBM Charter for System i5 Innovation

*Investing in the future of System i5 Clients, ISVs & Business Partners*

- 596 enhanced applications with over 400 in the pipeline
- 497 new solutions through 266 ISVs
- 114 tools vendors with over 200 applications
- 31 ISVs on System i5 Advisory Board
New 32 bit JVM Improves Development Options

- A new 32-bit i5/OS JVM V1.5 is expected to reduce the memory footprint for Java applications, which is especially valuable on smaller systems
  - Note: JVM 1.5 will be supported with WebSphere Application Server 6.1*
- Implements a standard IBM JVM with consistent tooling and tuning options
- Simple to implement without code changes for the majority of applications
- The classic 64-bit JVM will continue to offer best scalability and performance for large enterprises with i5/OS V5R4

* This presentation contains information about IBM’s plans and directions. Such plans are subject to change without notice.
WebFacing Deployment Tool for WDS with HATS Technology

- **WebFacing Deployment Tool**
  - Delivers an integrated runtime -- that exploits the capabilities of both HATS and WebFacing
  - WebFacing Tool now uses the capabilities of HATS for on-the-fly Web-enabling of system screens and 5250 applications
  - Helps promote rapid, cost-effective conversion and customization of ISV applications
  - No 5250 OLTP required for HATS datastream conversion on i5/OS V5R4

- **IBM WebSphere Development Studio**
  - WDSC Lite* to develop i5/OS applications
  - Free-format SQL in RPG applications
  - Wizard enhanced to create SOA Web service from RPG application in a single step

For more information, see http://www-306.ibm.com/software/awdtools/wds400/

* Technology Preview This presentation contains information about IBM’s plans and directions. Such plans are subject to change without notice.
Integrating SOA Web Services and RPG

- Deploy an RPG application as Web Service *provider*
  - Make your core applications available to others as a Web service
  - Uses SOAP engine in WebSphere Application Server and a Java wrapper to the RPG application
  - With V5R4, a new wizard in WDSC generates a Web service from RPG source in a single step

- Enable an RPG application as a *requester* to a Web Service
  - Link your core applications to Web applications and services provided by others
  - With V5R4 XML Toolkit now provides open APIs based on Apache AXIS to connect RPG out to a Web service
iSeries Access for Web

- Provides a quick and easy way to get started with the Web
- Deploy simple-to-run servlets or use the more advanced portlet option
- V5R4 servlet enhancements:
  - New, simple to customize home page
  - Single sign-on
  - 5250 emulation now includes bypass sign-on and hotspots for URLs
  - Import and run your existing IBM Query for iSeries and DB2 Query Manager requests from a browser
  - OpenOffice spreadsheet format (.ods) added to SQL uploads/downloads
CL Enhancements

- CL enhancements in V5R3 made CL a stronger application development language
- CL is further enhanced in V5R4
  - Support for simple subroutines
  - New pointer data type and based CL variables
  - Support for structures using defined variables
- CL can now take advantage of the wide range of APIs shipped in i5/OS programs & service programs

```cl
PGM
:
CALLSUBR REALSUBR /* 1st call to the subroutine */
:
CALLSUBR REALSUBR /* 2nd call to the subroutine */
:
SUBR REALSUBR /* Body of subroutine REALSUBR */
:
RTNSUBR
:
ENDSUBR
ENDPGM
```
Simplify Your IT

- Simplify infrastructure through integrated, easy-to-manage systems that deliver outstanding ROI
- Adapt without disruption to help growing businesses optimize their IT infrastructure investment
- Provide unrivaled flexibility to choose solutions that match business requirements
- Optimize resource utilization to help reduce operations costs
Integrate xSeries, BladeCenter via iSCSI (Product Preview)

- New iSCSI Host Bus Adapter (HBA) for System i5 connects selected xSeries systems & BladeCenter products via standard Ethernet cables/switches
- Requires an iSCSI HBA in each xSeries or blade server and supports Windows Server 2003
- Exploit i5/OS virtual storage to manage Windows storage
- Streamline communication between Windows & i5/OS applications with virtual Ethernet
- Integrate operations and backup

This presentation contains information about IBM's plans and directions. Such plans are subject to change without notice.
New DBA Tools Help Simplify Database Management

- Broad enhancements to database tools help simplify database administration
- Resource governor helps control resource intensive queries
- New real time index advisor and tools to manage index rebuilds
- Enhanced tools to monitor and analyze SQL Performance
- New health center advises on use of database
SNA Applications over IP Networks with Enterprise Extender

- Enables businesses to run existing SNA applications over an IP network without the expense of a parallel network infrastructure
- Supports existing applications over new generations of routers and network equipment that do not support SNA
- Improves performance significantly versus AnyNet
- Supports a broad range of SNA protocols & applications
Promote Business Resilience & Compliance

- Make outages of any kind, planned or unplanned transparent to business operations
- Safeguard data by keeping hackers and viruses out
- Promote the highest levels of security, auditing and compliance management
- Deliver proven technology, backed by world-class service and support
i5/OS V5R4 Security & Compliance

- **System integrity**
  - Help protect company data with i5/OS hardware storage protection

- **Access control**
  - Help companies secure systems with additional auditing features
    - Record special authority violations and prevent display of user audit attributes

- **Network security**
  - Help prevent network attacks with TCP/IP intrusion detection
    - Configure and create audit journal entries for events such as port scans
  - Extend support for VPNs with server side Network Address Translation (NAT) traversal
Backup Options Help Enable Continuous Operations

- Improved backup flexibility with virtual tape support
  - Multiple libraries or entire system can be saved
  - Integrated with BRMS
  - Duplicate volumes to media or send via FTP
- Save/restore of spool files assists companies with record retention
- New non-dedicated option to save key system object changes between full saves
- Parallel save/restore for IFS files
i5/OS V5R4 Clustering Solutions

- i5/OS base cluster services enhanced with administrative domain support
  - Enables synchronization of environmental objects such as user profiles and system values or attributes across nodes
- i5/OS will now have the option automatically to journal non-DB objects in addition to new database files
- New journaling option helps auditors view data in journal entries minimized to improve performance
Find Out More About i5/OS V5R4

- **COMMON**
  - Spring 2006 Conference & Expo
  - Minneapolis
  - March 26-30, 2006
  - For more information
    http://www.common.org/conferences/2006/spring/

- **iSeries Technical Conference**
  - Spring 2006 Conference & Expo
  - Orlando
  - May 8-12, 2006
  - For more information
    http://www-304.ibm.com/jct03001c/services/learning/ites.wss?pageType=page&c=a0000709
IBM System i5 and i5/OS V5R4

1. Promote Solutions Innovation

2. Simplify Your IT

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