# IBM Power 740 Express server

*High performance, reliable, expandable midsize database and consolidation server*

## Highlights

- For small-to-midsize database servers
- For consolidation of UNIX, IBM i and x86 Linux workloads and virtualized application servers

Everyone knows what "performance" meant for IT in the past. Built on the foundation of POWER7® processor technology, our Power Systems Express servers continue to excel and extend industry leadership in the traditional benchmarks of performance.

But, today, the IT landscape is evolving rapidly. And, as processes become more interrelated and complex, IT is being called upon to solve challenging new problems—and implement new IT projects, delivering them with both higher service levels and in a more cost effective manner.

The emerging measures of IT performance today are around agility and the ability to help the business capitalize on new opportunities. IT is measured on providing an infrastructure that can handle rapid growth and manage business risk while meeting higher required service levels. And of course it is expected that new services will be delivered with tighter budget constraints—with IT expected to do more with less and find the lowest cost solutions possible.

Businesses desire systems that deliver outstanding performance but also demand that those systems achieve higher levels of energy efficiency and utilization to help conserve energy and reduce infrastructure costs. As a small-to-midsize database server, the Power® 740 Express® server is fueled by the outstanding performance of the POWER7® processor, making it possible for applications to run faster with fewer processors, which can result in lower per core software licensing costs. The Power 740 Express also supports innovative workload-optimizing and energy management technologies to help clients get the most out of their systems; that is, running applications quickly and energy efficiently to reduce costs.

As a consolidation server, businesses can further reduce costs and energy consumption by combining the Power 740 Express performance, capacity and configuration flexibility with industrial-strength PowerVM™ virtualization for AIX®, IBM i, and Linux. The Power 740 Express is designed with large memory and I/O capacity to satisfy even the most demanding processing environments and can deliver business advantages and higher client satisfaction.

The Power 740 Express is a one- or two-socket server that supports up to 16 POWER7 cores in a flexible 4U rack-optimized form factor. The Power 740 offers large memory capacity, outstanding performance of the POWER7 processor, PowerVM and workload-optimizing capabilities to enable companies to get the most out of their systems by increasing utilization and performance while helping to reduce infrastructure and energy costs. The new Power 740 Express Model 8205-E6C adds increased memory capacity and additional high bandwidth Generation 2 PCI-Express slots to provide even greater performance capabilities.

## Power is the performance that delivers business advantage

The leadership performance of the POWER7 processor makes it possible for applications to run faster with fewer processors, resulting in lower per core software licensing costs. In addition, a single system can now run more applications and reduce the number of required servers, lowering infrastructure costs.

## Power is effortlessly balancing workload performance

POWER7 **Intelligent Threads** technology enables workload optimization by automatically switching between one, two and four execution threads per processor in order to optimize application throughput. In addition, **Active Memory™ Expansion** is a new POWER7 technology that enables the effective maximum memory capacity to be much larger than the true physical memory without the complexity and cost of installing additional memory devices. These workload-optimizing capabilities can improve application performance and ROI from the server.


Power 740 Express rack-mount server

## Power is the ability to dynamically allocate resources

Take advantage of the scalability and capacity of the Power 740 Express by leveraging our industrial-strength PowerVM technology to fully utilize the system. PowerVM allows any individual LPAR to access the maximum amount of memory and CPU cores that are available on the server. PowerVM offers this capability to dynamically adjust system resources to partitions based on workload demands, enabling a dynamic infrastructure that dramatically reduces server sprawl via massive consolidation of applications and servers. In addition, optional components, in PowerVM Editions, are designed to provide advanced virtualization technologies, resulting in efficiencies in resource utilization and cost savings.

## Power is availability you can count on

The Power 740 Express is designed with capabilities to deliver leading-edge application availability and allow more work to be processed with less operational disruption. RAS capabilities include recovery from intermittent errors or failover to redundant components, detection and reporting of failures and impending failures, and self-healing hardware that automatically initiates actions to effect error correction, repair or component replacement. In addition, the Processor Instruction Retry feature provides for the continuous monitoring of processor status with the capability to restart a processor if certain errors are detected. If required, workloads are redirected to alternate processors, all without disruption to application execution.

The Power 740 Express implements Light Path diagnostics, which provide an obvious and intuitive means to positively identify failing components. This allows system engineers and administrators to easily and quickly diagnose hardware problems. Hardware failures that may have taken hours to locate and diagnose can now be detected in minutes, avoiding or significantly reducing costly downtime.

## Power is dynamic energy optimization

EnergyScale™ Technology offers **Intelligent Energy** management features, which can dramatically and dynamically conserve power and further improve energy efficiency. These **Intelligent Energy** features enable the POWER7 processor to operate at a higher frequency, if environmental conditions permit, for increased performance and performance per watt; or, alternatively, operate at a reduced frequency, if user settings permit, for significant energy savings. The energy efficiency of the Power 740 is recognized by certain configurations being Energy Star® qualified.

| Feature | Benefits |
|---|---|
| **Leadership POWER7 performance** | • Access data faster and improve response time<br>• Do more work with fewer servers and benefit from infrastructure cost savings from a reduction in the number of servers and software licenses |
| **Intelligent Threads** | • Optimize performance by selecting the suitable threading mode for your application |
| **Active Memory Expansion** | • Enables more work to be done with existing server resources |
| **PowerVM Virtualization** | • Easily add workloads as your business grows<br>• Utilize the full capability of the system to reduce infrastructure costs by consolidating workloads running the AIX, IBM i or Linux operating<br>• Provides ability to handle unexpected workload peaks by sharing resources |
| **RAS Features** | • Keep applications up and running so you can focus on growing your business |
| **Light Path Diagnostics** | • Easily and quickly diagnose hardware problems reducing service time. |
| **Flexibility and choice of AIX, IBM i and Linux operating systems** | • Choose the operating environment that best suits your application and business needs |
| **IBM Systems Director Active Energy Manager™ with EnergyScale Technology** | • Dramatically and dynamically improve energy efficiency and lower energy costs with innovative energy management capabilities<br>• Enables businesses to continue operations when energy is limited |

## Power 740 Express at a glance

| **Configuration options** | | |
|---|---|---|
| POWER7 processor modules—one or two per system | 4-core or 8-core 3.3 GHz or<br>4-core or 8-core 3.7 GHz or<br>6-core or 12-core 3.7 GHz or<br>8-core or 16-core 3.55 GHz | |
| Sockets | 1 or 2 | |
| Level 2 (L2) cache | 256 KB per core | |
| Level 3 (L3) cache | 4 MB per core | |
| Memory | 8 GB to 512 GB[1] of RDIMM DDR3<br>Active Memory Expansion | |
| Solid-state Drives (SSD) | Up to eight SFF drives | |
| Disk drives | Up to eight SFF SAS drives | |
| Disk capacity | Up to 4.8 TB | |
| Media bays | Slimline for DVD-RAM<br>Half height for tape drive or removable disk | |
| **I/O** | **Model 8205-E6B** | **Model 8205-E6C** |
| PCI Adapter slots | Four PCI Express 8x plus optional four PCI Express Generation2 Low Profile | Five PCI Express 8x Generation2 plus optional four PCI Express Generation2 low profile |
| Standard Ethernet | Four virtual Ethernet 10/100/1000 Mbps ports (or)<br>Two virtual 10 Gigabit Ethernet ports | Two Ethernet 10/100/1000 Mbps ports |
| Integrated SAS controller | One controller for SAS DASD/SSD and DVD-RAM<br>Optional protected 175 MB cache with RAID 5, 6 | One controller for SAS DASD/SSD with RAID 10, and DVD-RAM<br>Optional protected 175 MB cache with RAID 5, 6 |
| High-performance PCI adapters (optional) | 8 Gigabit Fibre Channel<br>10 Gigabit Ethernet<br>10 Gigabit Fibre Channel over Ethernet<br>Dual-port Quad Data Rate IB | 4-port 8 Gigabit Fibre Channel<br>10 Gigabit Ethernet<br>10 Gigabit Fibre Channel over Ethernet<br>Dual Port Quad Data Rate IB |
| Other integrated ports | Three USB, two HMC, two system ports, two SPCN | |
| GX slots (12X) | Two GX++[2] | |

| **Power 740 Express at a glance** | |
|---|---|
| I/O expansion (optional) | Up to 4 PCIe 12X I/O drawers – 40 PCIe slots<br>Up to 8 PCI-X DDR 12X I/O drawers – 48 PCIx slots<br>Up to 416 SFF bays |
| Other PCI adapters supported include | SAS, SCSI, WAN/Async, USB, Crypto, iSCSI |
| **PowerVM technologies** | |
| POWER Hypervisor™ | LPAR, Dynamic LPAR, Virtual LAN (Memory-to-memory interpartition communication) |
| PowerVM Express Edition (optional) | Up to three partitions on the server; virtualized disk and optical devices (VIOS); Integrated Virtualization Manager (IVM); Shared Dedicated Capacity |
| PowerVM Standard Edition (optional) | PowerVM Express Edition plus Micro-Partitioning™ with up to 10 micropartitions per processor;<br>Multiple Shared Processor Pools |
| PowerVM Enterprise Edition (optional) | PowerVM Standard Edition plus Live Partition Mobility (LPM) and Active Memory Sharing (AMS) |
| **RAS features** | ECC memory with Chipkill<br>Processor Instruction Retry<br>Alternate Processor Recovery<br>Service processor with fault monitoring<br>Hot-plug disk bays<br>Hot-plug and redundant power supplies and cooling fans<br>Dynamic component Deallocation |
| **Operating systems**[3] | AIX<br>IBM i<br>Linux for POWER® |
| **High availability** | IBM PowerHA™ family |
| **Power requirements** | 200 V to 240 V ac, single phase |
| **System dimensions** | Rack Drawer: 6.9 in. H × 17.3 in. W × 24.0 in. D (173 mm × 440 mm × 610 mm); weight: 87 lbs (39.5 kg)[4] |
| **Warranty (limited)** | 3 year Limited Warranty, on site for selected components; CRU (customer-replaceable unit) for all other units (varies by country), Next Business Day 9x5 (excluding holidays), warranty service upgrades and maintenance are available |

## For more information

To learn more about the IBM Power 740 Express server, please contact your IBM marketing representative or IBM Business Partner, or visit the following websites:

- **ibm.com**/systems/power/
- http://www-03.ibm.com/systems/power/software/i/
- http://www-03.ibm.com/systems/power/software/aix/
- http://www-03.ibm.com/systems/power/software/
- http://www-03.ibm.com/systems/hardware/energy_star/index.html

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All performance information was determined in a controlled environment. Actual results may vary. Performance information is provided "as is" and no warranties or guarantees are expressed or implied by IBM. Buyers should consult other sources of information, including system benchmarks, to evaluate the performance of a system they are considering buying.

When referring to storage capacity, total TB equals total GB divided by 1,000; accessible capacity may be less.

[1] 256 GB maximum memory for Power 740 Model 8205-E6B

[2] One GX slot shares space with PCI Express x8 low profile option. Available configuration options are dependent on the number of processor cores and other factors. Contact IBM or your IBM Business Partner for specific configuration restrictions.

[3] See facts and features document for detailed OS level support.

[4] Weight will vary when disks, adapters and peripherals are added.



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