



HPE SUPERDOME FLEX vs STANDARD x86 SERVERS FOR EPIC



info@comport.com | www.comport.com | 800-830-0880



When it comes to Epic, it's always been true that infrastructure matters. During the pandemic upgrades were put on hold, in the face of other immediate and pressing needs. But upgrades are now back on the table. The reasons are clear: relentless data growth, migrations from Power Systems, mergers and acquisitions, and the EHR vendor's regularly increasing performance requirements.

But – spoiler alert – all x86 servers are not created equal.

EPIC INFRASTRUCTURE MATTERS – SO DO A FEW OTHER THINGS

To evaluate upgrade options based on the old paradigm – let's call it speeds & feeds – is to miss significant opportunities for a secure, efficient, budget-friendly, staff-efficient modernized Epic environment. The key elements to consider today are holistic and involve both the server and the Healthcare IT Partner.

- ✓ High Performance Scalable x86 Compute
- ✓ Alignment to Business Strategies
- ✓ Security – Server, Backup, DR, Cyber, Networks, Medical IoT
- ✓ Financial Options to Consume IT Matched to Budget & Usage
- ✓ An Experienced Healthcare IT Partner with Skills & Attitude to Take On Above

Healthcare IT teams are making the switch to High Performance Compute servers to support critical applications, including the EHR.

Growth of EHR Data

EHR data is growing at a record pace and running out of capacity is a main driver for Epic server upgrades. Medical imaging and video have increased across nearly all specialties. Technology improvements, like higher resolutions, mean that these files are also larger. The pandemic brought virtual telehealth visits into the mainstream. Extracting data every

night to generate reports requires the right computing power.

Community Connect has enabled a valuable pathway for larger Epic healthcare organizations to serve up Epic to smaller organizations with fewer resources. This partnership has inevitably increased the need for processing power to support this additional database growth.

High Performance Compute has emerged as the best today & tomorrow solution.



DIFFERENCES THAT MAKE SUPERDOME FLEX THE SUPERIOR OPTION FOR EPIC

To keep up with Epic database growth as well as high availability, Comport's Healthcare CTO often recommends HPE Superdome Flex (SD Flex). The architecture was purpose-built to provide fast, reliable, cost-effective high-performance compute for mission-critical applications.

When assessing Epic servers, we see four main areas where SD Flex servers outperform standard x86 servers:



1. Performance

Epic on Superdome Flex servers provide the best Epic database performance (by far) available today.



2. Scalability

Avoids buying whole new sets of servers with ongoing migrations to accommodate growth. Instead, the SD Flex architecture scales up by adding blocks of compute as needed.



3. RAS & Security

Embedded and automated Reliability and Security to protect the business.



4. Epic Validated

HPE and Epic have a track record of 25+ years working together with teams that test, coordinate and validate.



Let's take a look at each of these factors:

Performance

SD Flex is the highest performing server line for Epic performance in the market today. Epic validates based on the chip, with GRefs as the unit of measure for performance. The SD Flex has a range of power based on the various chips in the line-up. For example, a 4-socket SD Flex 280 for Epic supports 15M GRefs, an 8 socket at 25.7M or 26.8M GRefs depending on the model.

The challenge to upgrade can be that the new (scale-out) ECP model is expensive and generally means a rip and replace. The HPE Superdome Flex allows Epic customers to stay with the SMP architecture if they prefer and still have the room needed to grow. With increased IOPS and decreased latency, healthcare organizations can count on a better way to process data and apply it for their everyday needs.

Scale-up: Cost-efficient Growth Without Migrations

The Superdome Flex was designed to be scalable, so you can start small and grow, adding chunks of compute as needed. SD Flex is the only integrated scale-up solution that allows growth as needed without disruptive upgrades – ideal for EHR database growth. Comport helps migrate to SD Flex, then you're ready for future Epic growth.



The Superdome Flex was designed to be **scalable**, so you can start small and grow,

Embedded Reliability, Availability, Serviceability (RAS)

Your operations and business depend on your EHR. HPE Superdome Flex 280 servers set a high bar for reliability, with built-in safeguards to prevent unexpected downtime. Management and security are engineered to reduce or eliminate common vulnerabilities specifically for the most demanding applications.

- **Self-repair** – The Analysis Engine automatically predicts and detects errors and initiates recovery actions.
- **Reduced Attack Surface** – Requires firmware updates to be initiated by an authenticated RMC administrator, to cut off entry points for malware and hackers.
- **Redundant components** – Ensure greater uptime.
- **Silicon Root of Trust** – If firmware is compromised, the Silicon Root of Trust prevents execution of booting process and performs authentication checks.

The following figure outlines the key RAS features in the HPE Superdome Flex 280 server:

HPE SUPERDOME FLEX 280 SERVER: KEY RAS ADVANTAGES

RAS Feature	HPE Superdome Flex 280 Server	Standard x86 Server
Firmware-first	✓	✗
Automatic error logging	✓	✗
Auto self-healing (analysis engine)	✓	✗
Disabling/deconfiguration of failed FRUs	✓	✗
Onboard fault analyzer	✓	✗
Automatic restart after deconfiguration and self-healing	✓	✗
Advanced processor error handling (eMCA Gen2)	✓	✗
Advanced memory resiliency (HPE Fast Fault Tolerance)	✓	✗
Advanced PCIe error recovery (LER)	✓	✗

HPE Superdome Flex 280 server key RAS advantage

Epic Validated

HPE and Epic have a track record of 25+ years working together with teams that test, coordinate and validate. Both operational database architectures on HPE Superdome Flex 280 servers: symmetric multiprocessing (SMP) and Enterprise Cache Protocol (ECP) are validated.

82% of SMP customers are SMP. 18% are now ECP. With the newer ECP model, many are considering changes. ECP however may mean re-architecting your system with significant costs. With Superdome Flex, you can get the performance of ECP in the SMP model.

ALIGNING IT TO BUSINESS STRATEGIES

Hospital consolidations have been ongoing for quite some time and continue. Community hospitals, clinics, behavioral health and physician organizations are being acquired by larger organizations that are expanding regionally or nationally, to consolidate cost structures and leverage economies of scale.

Today solution architects within the Healthcare IT space must understand business strategies for correct IT sizing, configurations, cloud decisions, cost, security and financial consumption options. Database growth from

hospital systems that undergo mergers and acquisitions is large and relatively sudden – so scaling the EHR server infrastructure to keep pace must be a major consideration.

In these types of growth cases, purchasing IT as a service where additional capacity is added via a change order can be a useful and agile solution. HPE GreenLake is intended to support these use cases. Managed services can be combined into the single monthly payment and can alleviate staff shortages. An experienced IT partner with years of hospital insights adds value way beyond the hardware.



LET'S NOT OVERLOOK SECURITY

With the right Healthcare IT Partner a platform change is an opportunity to de-risk. Hospitals are cyber targets with multiple attack surfaces. PHI is valuable to cyber criminals, with large profits to be made on the dark web. In fact, healthcare organizations every year pay hundreds of thousands of dollars in HIPAA penalties.

The question today is not if you will be attacked. It's more like ***"Can you recover and how long will it take?"***

Despite protections, breaches do happen. Phishing attacks, malware, and other security risks are commonplace. The question today is not if you will be attacked. It's more like "Can you recover and how long will it take?" We want our clients to be safe and avoid paying ransom.

Aging infrastructure and medical IoT with known vulnerabilities can be exploited.

Rigorous internal patch management and 3-2-1 backups or a managed service are fundamental, good investments. Newer platforms have more automated, built-in security that further reduce cyber risk. For example, HPE Superdome Flex Silicon Root of Trust detects compromised firmware and prevents its execution.

The best Healthcare IT Partner will competently size and configure the new HPC platform. But they will also work with you to assess and recommend a roadmap for comprehensive multi-layered security – modernized backups, disaster recovery, networks, endpoint and medical IoT security. The name of the game is to identify and fill any gaps, building on what you have.

Managed services including security, backup, DR and Network as a Service can be wrapped into a single monthly charge, upgrading and modernizing the security profile. Security is critical and must be comprehensive to be effective, but not every IT Partner has these specialists, skills or interest.

FINANCIAL OPTIONS: MATCHING BUDGET & USAGE

In the old days technology came in cycles, with a large upfront price tag that included more capacity than you needed, so hopefully you didn't have to go back to the CFO for several years. Today, there are multiple interesting ways to purchase technology that can be tailored to your goals and budget.

Instead of purchasing, you can "consume" IT with a monthly charge, often referred to as "as a service." When you need more, it's a simple change order. This can involve on-premises, cloud or hosted environments. Services and licenses can also be included, often reducing costs and freeing IT staff for more productive work. The elimination of large upfront outlays means that other projects can be funded and implemented. Again, Comport's Healthcare IT pre-sales engineers, in addition to the technical work, will prepare financial and consumption options that meet your budget and CFO's preferences for capex, opex, or a mix of both.

AI AND MACHINE LEARNING PROPEL DATA INSIGHTS VIA HIGH PERFORMANCE COMPUTE

Infrastructure supporting AI frequently contains high-speed connections that can move substantial amounts of data rapidly between processors. However, in scale-out AI clusters, moving data between the nodes can

cause bottlenecks. The latency caused by moving data between servers and re-constituting that complex data can take a significant amount of time.

Leading healthcare organizations are starting to look towards HPE Superdome Flex scale-up solutions because they shorten the time it takes to receive insight from your data. The AI provided within the infrastructure can produce enhanced insights over traditional solutions.

The Superdome Flex can scale up from 4 to 32 sockets and start at 1TB of data to expand to 48TB of shared memory. This platform can solve key data challenges, meeting even the largest in-memory AI needs while accelerating insights by eliminating the need to separate datasets and re-assemble them after analysis.



TODAY THE ROLES OF A HEALTHCARE IT PARTNER ARE BIGGER

Today the work of a good Healthcare IT Partner is demanding. It's no longer enough to just sell hardware; there is considerably more value to be added when the job is done right. Many organizations can work with you to deliver infrastructure for your EHR but few actually specialize in healthcare.

Comport Healthcare Solutions provides our customers with decades of experience in the industry. Our team has individuals who have worked in healthcare and understand the workflows, departments, decision makers and how IT enables all. Comport will work with your team to understand your processes and develop individualized solutions that fit your needs. With Comport's industry-leading OEM partners, investment in certifications and deep technical expertise, Public/Private Clouds, Managed Services, and Security Services – Comport is unique as a Healthcare IT Partner. Comport is the right size to provide personal attention and care when you need help, something larger organizations simply can't provide.

Your Healthcare IT Partner's job today is to:

- Present financial and consumption options appropriate to your specific budgetary needs and goals. The mix may include outright purchases, pay-as-you-go monthly charges, leases, cloud services and managed services. Look to find an IT Provider with significant experience in healthcare IT who will take the time to understand your business and technology goals, and help to max your investment and lower the cost of ownership.
- Evaluate the Security posture with every project. We have seen where simple steps that would help a fast recovery are missed, with disastrous consequences. Comport will always want to have a conversation around security that includes backups, DR, networks, multi-factor authentication and more. An outside look from your Healthcare IT Partner's Security Specialists can be the best investment to go with your Server upgrade.
- The IT Partner must understand and evaluate multiple configurations to avoid Supply Chain issues around deliverability, if timing to bring on additional capacity is tight.



- The exchange of information, interoperability and integrations with applications need to be considered when planning and selecting new infrastructure. You may consider where it makes sense to invest in HPC technology that can provide AI or machine learning for research needs.
- An effective cloud strategy is often required, but not everything in healthcare can be abstracted in the cloud. The Healthcare IT Partner's Cloud architects can help chart a course with applications, workloads, costs and processes to create a mix that works for the organization.

Aging infrastructure is not without costs. These include security vulnerabilities, unreliable performance, challenges meeting the application vendor's requirements, specialized IT skills, and staff time that could be better spent on strategic projects. Let's work together and see how HPC Superdome Flex can benefit your Epic performance. Our Healthcare Field CTO [Bill Flatley](#) is available for a conversation.

