



Ericsson* Micro Data Centers Let MNOs Deploy Cloud Services

Ericsson Blade Server Platform 8100 with compute nodes based on the Intel® Xeon® processor D-2166 offers expanded compute power and networking capability to mobile network operators creating next-generation services.



Introduction

Cloud services are emerging as a significant opportunity for mobile network operators (MNOs). Demand for these services is growing rapidly, and the emergence of 5G networks will accelerate this trend.

A key advantage for MNOs offering cloud services is their distributed network, which lets them provision services from locations—mobile switching centers, cell sites, and other facilities—all across a country. Utilizing these assets to deploy data center services close to the customer can dramatically reduce latency, which is a concern for a growing range of services. For example, several key machine-to-machine (M2M) and Internet of things (IoT) applications have very strict latency requirements, making them very good candidates for being deployed on micro data centers that are located close to the customer.

Another important requirement is local breakout capabilities, which can save bandwidth in the network and ensure that the services can be provided even if the connection to the central network breaks. And there are also regulatory aspects to consider.

Defining a Micro Data Center

Micro data centers are standalone, rack- or blade-based systems containing all compute, storage, and networking resources needed for cloud services, along with traditional data center elements such as fire suppression and uninterruptible power supply (UPS).

Most cloud data center equipment is housed in special facilities with strict environmental controls that are not available for micro data center gear housed in a remote facility. Thus, micro data center systems must be capable of operating in demanding physical environments by offering:

- Small size that fits into small physical spaces already populated by mobile equipment.
- Robust remote lifecycle management and maintenance to simplify the ability of a remote technician to manage servers spread across a wide geographic area.
- NEBS Level 3 certification to demonstrate carrier-grade reliability.

Ericsson* meets the needs of the micro data center with a complete NFV hardware and software solution based on Intel® architecture processors.

The Solution

Ericsson's solution for the challenges of micro data centers includes its Ericsson Blade Server Platform 8100 (BSP 8100) with the new Generic Ericsson Processor 8 (GEP8) board, which utilizes the Intel® Xeon® processor D-2166 to deliver increased compute power in a smaller board size.

BSP 8100

The BSP 8100 is a key product in Ericsson's cloud and NFV infrastructure product portfolio. For micro data center applications, the BSP 8100 is available as a 24-slot blade server with a small footprint, NEBS Level 3 compliance, low power consumption and low noise.

The BSP 8100 features a dedicated Ethernet switch for internal sub-rack communication, a redundant infrastructure manager, and a switch/router to connect to the Internet, other BSP 8100 chassis, and other resources.

The BSP 8100 has been engineered for use in micro data center applications with the following architecture guidelines:

- **Telecom-Grade Reliability:** In addition to its NEBS Level 3 compliance, all key BSP 8100 components are redundant and hot swappable.
- **Utilizing Open Standards:** The BSP 8100 is powered by Intel® architecture CPUs and supports Ericsson applications as well as third-party applications.
- **Flexibility:** Provides vPOD support enabling several applications (tenants) to coexist within the same blade server. Each tenant has its own set of blades, i.e., compute and storage resources, and they share the switching infrastructure. This provides a high degree of application separation and predictable behavior in terms of offered capacity and availability.
- **Efficient operations:** The capturing unit provides built-in protocol tracing for any application hosted in an installation. It captures, stores, decodes, and presents protocol information to support, for example, fast and efficient trouble shooting, and customer complaint follow-up. The built-in health check function ensures that the configuration is correct at all times.
- **Multi-Level Management:** The BSP 8100 features system management, NFV management, and service deployment management leveraging Ericsson's extensive telecom industry experience. This management includes extensive operational and business system support (OSS/BSS), configuration management, transport management, performance management, fault management, and hardware and software management.

GEP8 Powered by Intel Xeon Processor D-2100 Product Family

The latest addition to the BSP 8100 will be the GEP8 processor board, which, at 15 mm wide, is half the width of previous two-slot GEP boards. This size increases the total compute capacity of each BSP 8100 and also provides an improvement in networking capacity. Before the use of the Intel Xeon processor D-2100 product family, the compute limit of the system was the gating factor to the number of subscribers supported by the system.



Figure 1. Ericsson BSP 8100

The Ericsson GEP8 is based on the Intel Xeon processor D-2166, part of the Intel Xeon processor D-2100 product family. These processors leverage the innovative mesh architecture of Intel Xeon Scalable processors for a low-power, high-density solution that integrates essential network, security, and acceleration capabilities in a high-performance system on a chip (SoC) form factor. The architecture integrates Intel® Advanced Vector Extensions 512 (Intel® AVX-512), a specialized instruction set that delivers improved compute performance and accelerates common data transformation algorithms like cryptography and data protection. The Intel Xeon processor D-2100 product family is available with up to up to 18 cores (BSP 8100 12 cores) and a speed of up to 3.0 GHz and supports up to 512 GB (BSP 8100 128 GB) of RAM. For data security processing, the chip comes with Intel® QuickAssist Technology (Intel® QAT) as an enhanced integration, which accelerates compression, encryption, and decryption tasks from the CPU. Other enhanced integrations include support for up to four integrated Ethernet 10 GbE controllers.

Ericsson NFVI Solution

Ericsson BSP 8100 is part of the Ericsson NFVI solution. This is a cloud infrastructure and management solution verified by Ericsson to meet target virtual network functions (VNF) functional and characteristic requirements for different types of applications. It is also used as the common stack for requirement handling, alignment, and verification of VNFs. The solution is commercially proven in the field and provides short time to market (TTM) for operators when introducing cloud-based services and low total cost of ownership (TCO).

Conclusion

Micro data centers provide a means for MNOs to expand their cloud service revenues in a way that maximizes the investment they have made in a nationwide distributed network. The integrated Ericsson BSP 8100 with NFV and compute nodes powered by Intel provides telecom reliability and features along with the virtualization infrastructure that is critical for success.

Learn More

Ericsson: <https://www.ericsson.com/digital-services/offerings/nfvi-cloud-infrastructure>

Intel Xeon processors D-2100 product family: <http://www.intel.com/xeond>

Ericsson is a member of the Intel® Network Builders program: <http://networkbuilders.intel.com>



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