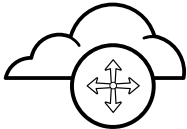# RED HAT ENTERPRISE LINUX SERVER FOR ARM

Development preview for 64-bit ARM v8-A architecture

DATASHEET

CHANGING DEMANDS REQUIRE HYPERSCALE COMPUTING

New approaches are required to address ever-growing datacenter demands stemming from new computational and data-intensive workloads. Hyperscale computing represents the next evolution of performance-oriented designs used to form robust, scalable infrastructure.

Several hyperscale server designs are based on processors that use a 64-bit ARM (Advanced RISC Machine) architecture. These designs take advantage of advances in CPU technology, system hardware, and packaging to offer additional choices to customers looking for tightly integrated hardware solutions.

Red Hat supports the evolving 64-bit ARM server ecosystem through open source software, upstream collaboration, and strict adherence to open standards. Red Hat® Enterprise Linux® Server for ARM Development preview offers a standardized, streamlined operating system for 64-bit ARM v8-A architecture.

SUPPORTING STANDARDS-BASED INNOVATION

Learn more about LEG
linaro.org

Learn more about SBSA
bit.ly/1LCOzFP

Learn more about SBBR
bit.ly/1LCMO6U

To support the development of open standards and technologies around ARM 64-bit servers, Red Hat joined Linaro, a nonprofit engineering organization that focuses on accelerating open source software development and standardizing the various devices and software implementations included in ARM environments. In addition, Red Hat is a founding member of the Linaro Enterprise Group (LEG) and the Linaro IoT (Internet of Things) & Embedded Group (LITE). LEG focuses on accelerating Linux ARM server development by supporting collaboration between original equip-ment manufacturers (OEMs), commercial Linux providers, and system-on-a-chip (SoC) vendors in a vendor-neutral environment. LITE focuses on developing core technology for IoT devices and gateways. These gateways connect devices to back-end systems and range from simple gateways for basic connectivity to powerful industrial gateways built on 64-bit ARM platforms for factories, power stations, and other use cases.

Red Hat also helped create the Server Base System Architecture (SBSA) and Server Base Boot Requirements (SBBR) specifications released by ARM to support and accelerate software development across multiple 64-bit ARM platforms. These specifications provide a framework for building and deploying ARM architecture-based solutions.

RED HAT ARM PARTNER EARLY ACCESS PROGRAM (PEAP)

Red Hat's ARM PEAP
**connect.redhat.com/
activities/early-access**

Red Hat's goal is to enable new server designs that are being developed by our hardware partners by creating a single, unified operating system to support development of new applications while maintaining enterprise-level reliability, security, flexibility, and performance for applications available as open source projects.

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With that in mind, Red Hat launched ARM Partner Early Access Program for hardware and software vendor partners that delivers a single operating platform to support multiple partner-initiated system designs based on the 64-bit ARMv8-A architecture. Since 2014, over 70 Red Hat partners — from silicon vendors to hardware vendors to independent software vendors (ISVs) — have joined the program.

For hardware vendors, OEMs, and original design manufacturers (ODMs), this program offers access to an open, standards-based operating system that is easy to use for enterprise end users, resulting in faster adoption of their technologies. ISVs gain early access to stable, verified hardware and operating system combinations to support migration of customer applications to 64-bit ARM architectures on request — regardless of customers' datacenter hardware.

RED HAT ENTERPRISE LINUX SERVER FOR ARM

As a result of continued collaboration with our partners, end users, and the broader open source community, Red Hat has developed Red Hat Enterprise Linux Server for ARM. It is available as an unsupported Development Preview to all current and future members of the Red Hat ARM Partner Early Access Program as well as their end users.

Red Hat Enterprise Linux Server for ARM, based on Red Hat Enterprise Linux, is designed to work with 64-bit ARM v8-A architecture and offers a familiar, standards-based operating system and tools. As a result, the platform offers a seamless user experience across architectures and simplifies porting and development.

In addition to the base operating system, Red Hat is also making several key tools and technologies available on 64-bit ARM architecture as Development Preview:

- **Single host Kernel-based Virtual Machine (KVM)-based virtualization** lets developers deploy and prototype workloads and applications in a virtualized environment. KVM-based virtual-ization is a foundation for many software-defined datacenter technologies, including Red Hat Virtualization and Red Hat OpenStack® Platform.

- **Red Hat Ceph Storage** supports deploying and prototyping scale-out, software-defined object, block, and file storage.

- **Red Hat Developer Toolset** provides an optional set of newer development tools to enhance productivity and make the latest stable upstream GNU Compiler Collection (GCC) features available for 64-bit ARM platforms. This toolset can be deployed alongside the default tools included in Red Hat Enterprise Linux Server for ARM, giving software developers access to a choice of compiler versions and the latest debugging and performance-optimizing tools.

FEATURES OVERVIEW

TABLE 1. RED HAT ENTERPRISE LINUX SERVER FOR ARM DEVELOPMENT PREVIEW
TECHNICAL FEATURES

Architecture specification	64-bit ARM v8-A
Kernel version	4.5
Userspace version	Common userspace with Red Hat Enterprise Linux 7
Release cadence	In step with Red Hat Enterprise Linux 7
Product support and life cycle	Development Preview is unsupported and does not guarantee preservation of kernel application binary interface (ABI) or version between releases
Deployment	Bare-metal installations only, but virtual machines (VMs) can be deployed using optional Red Hat Enterprise Linux KVM Development Preview
Installation, entitlements, and subscription management support	Installation image download via Red Hat Customer Portal Node management via Red Hat Satellite 6.1 (or later)
Compilers and tools	gcc 4.8 for C, C++, and Fortran development OR gcc 6 or later version for C, C++, and Fortran development as a part of Red Hat Developer Toolset
Java™ support	OpenJDK 7 and 8
Scripting languages	Python 2.7, Ruby 2.0, PHP 5.4, and Perl 5.16
Databases	MariaDB 5.5 and PostgreSQL 9.2

Learn more about
Red Hat Developer Toolset
developers.redhat.com/
products/developertoolset/
overview/

ADDITIONAL DEVELOPMENT TOOLS

After downloading and installing Red Hat Enterprise Linux Server for ARM Development Preview, users can also access the following unsupported products via the Red Hat Customer Portal:

• Red Hat Enterprise Linux KVM Development Preview.

• Red Hat Ceph Storage Development Preview.

• Red Hat Developer Toolset.

CONCLUSION

The 64-bit ARM architecture is still evolving and lacks a wide variety of hardware and software solutions. Supporting 64-bit ARM platforms with an open, standards-based operating system gives developers access to a viable development platform for the 64-bit ARM architecture, as well as a rich ecosystem of customers and partners.

Organizations and developers interested in evaluating particular hardware designs with Red Hat Enterprise Linux Server for ARM Development Preview should inquire with hardware vendors to determine availability and request access. Hardware vendors will provide a special registration code for Red Hat Enterprise Linux Server for ARM Development Preview that can be used for evaluation and testing purposes. To activate the subscription with the registration code, you will need to have an active Red Hat Customer Portal user account. Vendors can assist you with access and provide additional information.
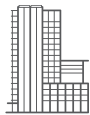
ABOUT RED HAT

Red Hat is the world's leading provider of open source software solutions, using a community-powered approach to provide reliable and high-performing cloud, Linux, middleware, storage, and virtualization technologies. Red Hat also offers award-winning support, training, and consulting services. As a connective hub in a global network of enterprises, partners, and open source communities, Red Hat helps create relevant, innovative technologies that liberate resources for growth and prepare customers for the future of IT.

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