



CGX

Carrier Grade Express

data sheet

MontaVista Carrier Grade Express

Powerful Linux® Environment for Intelligent Devices

MontaVista® Linux® Carrier Grade eXpress (CGX), delivers Carrier Grade Linux reliability, security and serviceability to embedded Internet of Things (IoT) devices along with high configurability and flexibility.

CGX meets the demands of the interconnected intelligent devices, providing application portability, dynamic configuration, field maintenance, and real-time performance in a single platform. Development teams are under tremendous pressure to build leading-edge features into the next generation of highly intelligent and interconnected devices, while getting them to market rapidly. CGX is the ideal platform for developers who want to leverage the flexibility of a true open source development platform, as well as the ability to achieve rapid time to market.

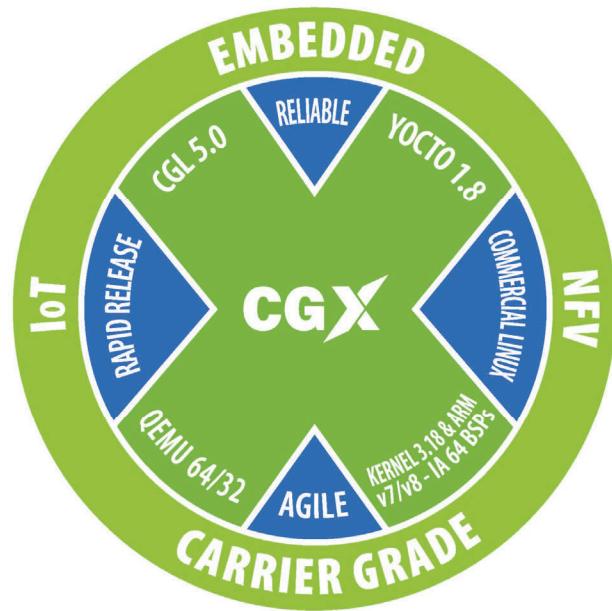
MontaVista® CGX enables state-of-art development across a wide array of intelligent devices markets, from traditional networking and communication to Network Function Virtualization (NFV), general embedded and industrial control to Internet of Things (IoT). As a fully integrated, pre-tested environment, CGX offers a truly robust out of box experience for development teams.

Rapid Release

MontaVista® CGX will follow rapid release cadence to better align with latest Yocto® releases, enabling adoption of newer Long Term Support (LTS) Kernels and Tool-chains.

Reliable

MontaVista® CGX offers “Carrier Grade” quality enhancements of “High Availability”, “Security”, “Rich Networking and IO support”, “Real-Time response time with high throughput” and “Multicore & Virtualization support”.



Agile

MontaVista® CGX enables rapid development using QEMU simulator, flexible Import Custom packages, Real-time, Power Management, Memory Footprint Optimizations, and Deep Connectivity.

Commercial

Developers can leverage MontaVista® CGX rich productivity tools, intensive testing and bug fixes to deliver proven quality for commercial products. Consistent updates, training, technical support, custom engineering, along with access to GPL legal expertise , and export compliance make CGX a full featured platform solution.

BENEFITS

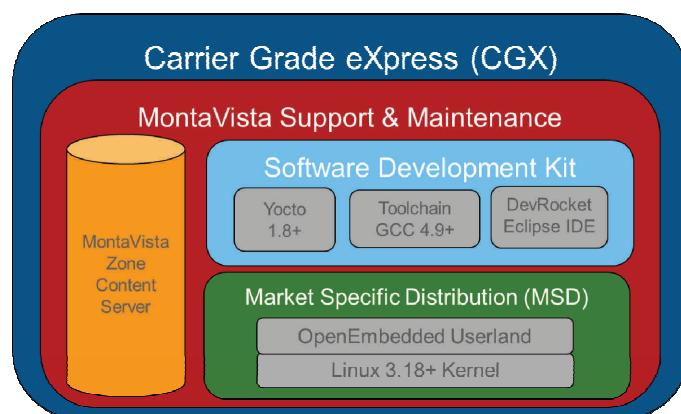
- Powerful Linux Environment delivers carrier grade Linux reliability, security and serviceability to embedded Internet of Things (IoT) devices along with high configurability and flexibility
- Rapid Release Cadence
- Alignment with latest revisions of Yocto® Project releases
- A non-unified kernel approach, to reduce productization cost and release cadence
- Real Time / Deterministic Kernel, Low Footprint Configuration, Power Management & Fast boot
- Agile development with QEMU Simulator, Secure Builds, and Flexible Configuration
- Pre-built cross architecture MSDs based on ARM®v7/v8 & Intel® X86 64 (Power PC and MIPS as per roadmap)
- Carrier Grade : High Availability, Serviceability, Long Term Support
- Virtualization: Linux Containers (LXC), Docker™, & KVM
- Eclipse-based IDE provides intuitive, integrated, development environment

MontaVista Carrier Grade Express

Comprehensive Development Platform

MontaVista® Linux® Carrier Grade eXpress (CGX), delivers a comprehensive platform meeting developers need of a truly open solution for higher control that is fully tested for reduced time to market. MontaVista also provides risk mitigation by providing its customers with protection from IP and patent infringement and will provide full US export registration coverage for CGX.

- Linux Board Support with latest Linux 3.18 or higher LTS Kernel version with Pre-integrated OE user-land.
- Software Development Kit that includes latest Yocto™ latest release with GNU toolchains and DevRocket™ Eclipse IDE.
- MontaVista Zone secure content repository.



Reduce your total cost of ownership with a fully supported, standardized Linux platform. The "make vs. buy" decision has been resolved: : acquiring CGX is the right choice for OEMs to build a device platform , eliminating concerns about reliability, security, upgrades, or patches, and allowing them to focus on core value-added expertise in application development.

DevRocket™ IDE

MontaVista CGX includes new runtime components that integrate with MontaVista DevRocket, an Eclipse-based IDE with development tools that enhance productivity for both kernel-level and application-level engineers. Integrated memory leak detection, performance profiling, memory usage analysis, and system tracing combine to accelerate system development and maintenance, and increase system availability. MontaVista Image Designer™ GUI simplifies the creation of the smallest and highest performance file-system.

HIGHLIGHT

MARKET SPECIFIC DISTRIBUTION

EMBEDDED LINUX KERNEL
DEVICE DRIVERS & LIBRARIES
USERLAND APPLICATIONS
CGX PROFILES*

SOFTWARE DEVELOPMENT KIT

LATEST YOCO BUILD ENGINE
KERNEL & APPLICATION
DEVELOPMNET TOOLS
SYSTEM MEASUREMENT TOOLS
DEVICE MANAGEMENT TOOLS

MONTAVISTA CONTENT SERVER

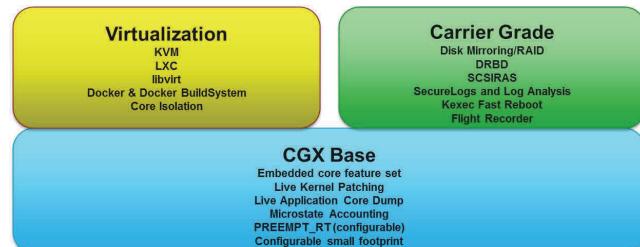
ON-DEMAND CODE FETHING
NETWORK BINARY CACHE (PRE-BUILT BINARIES)
LOCAL SOURCE MIRROR
SECURE BUILD & UPDATES

MONTAVISTA DEVROCKET

ECLIPSE-BASED IDE
PERFORMANCE MONITTORING
PROFILING
MEMORY LEAK DETECTION
MEMORY USAGE ANALYSIS
SYSTEM & APP TRACING

MontaVista CGX Profiles

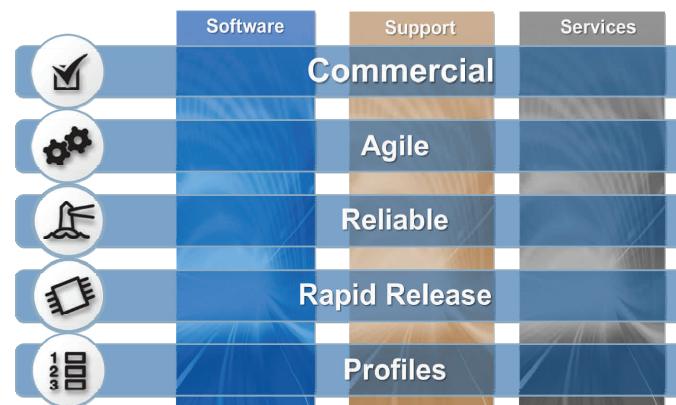
MontaVista CGX is packaged as a base platform (called CGX Foundation) equipped with a core feature set needed to produce a high quality embedded product. For market specific requirements, MontaVista will offer additional technology profiles such as Carrier Grade and Virtualization, which will add key features and functionality critical for solutions in these verticals.



CGX MSD enablement is based on profiles that will be enabled depending on the target market of the board/SoC. Customers can optimize value by selecting to subscribe only required profiles for a particular MSD.

MontaVista Support & Professional Services

In addition to the technical values, MontaVista CGX users benefit from MontaVista's global support organization that can also provide customized support programs for all customer needs. This is complemented by MontaVista's world-class Engineering Services group to assist customers in building solutions to support their specific use cases ranging from portability of legacy applications to scalable KVM implementations with real-time performance. In addition to the initial solution, the Engineering Services group can build out a full test and validation process and a long-term support and maintenance strategy to suit the requirements of any deployment strategy.



MontaVista Carrier Grade Express

Multicore Resource Management

MontaVista® CGX, provides multiple options for maximizing the resource utilization of multi-core processors. With both AMP and SMP support, along with new partitioning and virtualization technologies, CGX provides the most flexibility and the highest performance for multi-core applications.

Microstate Accounting

For the first time in a commercial Linux product, engineers can accurately measure process and thread utilization on a CPU. CGX performs high-resolution process accounting, so applications can be monitored to anticipate and prevent CPU overload situations. This enables engineers to design automated load balancing and graceful protocol degradation using reliable and accurate CPU load numbers. Engineers can accurately monitor and precisely predict CPU loads, increasing the accuracy of worst-case planning, preventing downtime, and reducing the purchase of backup equipment for traffic surges. Older systems report CPU and thread activities based on statistical sampling estimates, which can be very inaccurate, instead of the actual measurement now enabled by microstate accounting. Microstate accounting in CGX will improve the scalability, reliability, and cost of carriers & IOT device networks.

Flight Recorder

When a system fails today, field engineers must wait until the next failure to investigate the first one. Engineers have no way of gathering enough data about what happened before and during a crash to conduct an effective post-crash diagnosis and take corrective action. CGX includes the new Flight Recorder, which acts like a black box to track and log system history. It keeps a history log containing the scheduled processes and system events which provides much more information than a crash dump snapshot, and is user-extensible for customized tracking.

Live Kernel Patching

One of the key benefits of the Open Source environment is the speed at which kernel developers respond to security issues. With the addition of Kernel Live Patching system administrators now have the best of both worlds, security fixes can be immediately implemented without any time consuming reboots. In addition to security updates the feature can be used to apply diagnostic patches and critical bug fixes.

HIGHLIGHT

VIRTUALIZATION

- MULTICORE RESOURCE MGMT
- KERNEL VIRTUAL MACHINE (KVM)
- LXC CONTAINERS
- DOCKER
- VIRTUALIZATION TOOLS

CARRIER GRADE LINUX

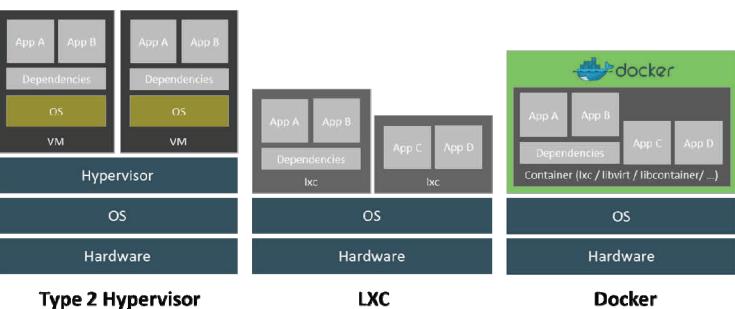
- HIGH AVAILABILITY
- FIELD SERVICEABILITY FEATURES
- ADDITIONAL I/O(IPMI, RAID etc.)
- CGL 5.0 COMPATIBILITY
- LONG TERM SUPPORT

Security

MontaVista has worked closely with the leader in enterprise security to create a platform that meets all relevant requirements for the network enterprise market. Additionally, CGX update leveraged the features applicable to the embedded environment from Security Technology Implementation Guideline (STIG) and Common Criteria Operation System Protection Profile (OSPP) standards to build out the security features for the platform. As a trusted Operating System Vendor, MontaVista receives notification of all security fixes and CGX security team provides rapid updates of any new security fixes to the CGX platform. To help further improve uptime availability, CGX includes native Address Space Layout Randomization (ASLR).

Kernel Virtual Machine (KVM) Hypervisor

KVM provides a full virtualized environment for hosting multiple guest OS's. KVM allows users to partition the system into multiple OS's with maximum isolation and security. Currently available for all architectures that support KVM.



Linux Containers (LXC)

Linux containers provide an isolated application space without the need for a complete virtualization solution. They are an operating system-level partitioning method for running multiple isolated processes. Containers do not provide a virtual machine, but rather provides a virtual environment that has its own process and network space allocated which allows CPU time and memory constraints to be set.

Docker

Docker™ is a project by Docker Inc , initially based on the LXC project to build single application containers. Docker has now developed their own implementation libcontainer that uses kernel container capabilities directly. Designed specifically to support single application per container.

LINUX BSP & TOOLCHAINS

- ARCHITECTURE CROSS TOOLS
- GCC 4.9+ COMPILER & DEBUGGER
- UCLIBC AND GLIBC SUPPORT

DEVELOPMENT HOSTS

- LINUX (RHEL 6/7, UBUNTU 12/14)



MontaVista CGX Key Benefits

- Faster Time-To-Development - MontaVista Linux CGX offers a complete embedded Linux distribution and tools to get up and running sooner. Using the de-facto standard open source build system, leverage existing work and move to MontaVista Linux CGX with the assurance of feature compatibility and a clear migration path.
- Increased Flexibility in Integration and Customization - With unprecedented flexibility in a commercial solution, fetch and integrate code from other team members, internal company teams and outside vendors and more easily customize software, including kernel, device drivers, libraries and applications.
- Experienced Help - Get over 15 years of experience and support from top experts in their field—from the leader in embedded Linux commercialization.
- Complete Development Toolkit - Use command line or Eclipse-based MontaVista DevRocket and get a completely integrated set of tools including C/C++ compilers, run-time libraries, and a source- and assembly-level debugger—all optimized for specific hardware.
- Ease of Development - Application developers can use the one click edit/compile/debug to quickly build and deploy target images.
- Market Enabler - CGX is packaged as a layered configuration of profiles with a base product “CGX Foundation” along with feature rich combination for “Carrier Grade Linux” and “Virtualization” support to meet the MSD applicability and customer use case for a general embedded, Carrier network appliance and/or a IoT gateway design.
- Commercial choice - MontaVista CGX licensing is flexible, allowing customers to acquire what is needed today with room to expand as technology requirements and personnel evolve.

eXpress.Connected.Everything.

About MontaVista Software

MontaVista Software, LLC, a wholly owned subsidiary of Cavium Networks (NASDAQ:CAVM) is a leader in embedded Linux commercialization. For over 15 years, MontaVista has been helping embedded developers get the most out of open source by adding commercial quality, integration, hardware enablement, expert support, and the resources of the MontaVista development community.



All Ways Open

MontaVista Software

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