

QorIQ Configuration and Validation Suite 4.23

1. Overview

This document provides release notes for the QorIQ Configuration and Validation Suite (QCVS) 4.23 release. It describes the new features added in the release, lists the targets supported by each QCVS component, and provides instructions on product installation, licensing, and support.

Besides adding new enhancements, this release addresses several issues found in QCVS 4.22 release.

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NOTE QCVS 4.10 release and later supports only LS series, ARMv8 based devices. Support for Power Architecture - based devices will be continued in QCVS 4.5.x product line. Support for ARMv7 - based devices will be continued in QCVS 4.9.x product line (see [QCVS Installation Guide](#) for more details).

NOTE QCVS must be installed over ARMv8 installed from a CW4NET installation. For more details on CW4NET, see [CodeWarrior Development Suites for Networked Applications](#).

2. Revision history

The table below shows the revision history for the QCVS releases.

Table 1: Revision history

QCVS release	Key new features
QCVS 4.23	<ul style="list-style-type: none"> • DDR tool: Memtester • DDR tool: Warm boot for memory tests • DDR tool: New algorithm for ATx delay for LX216x • DDR tool: Import DDRC and PHY TFA output for LX216x • DDR tool: Import/Export LX216x PHY parameters • DDR tool: LX216x maximal debug log for PHY messages • DDR tool: Bug fixes • SerDes tool: Support for LX216x • SerDes tool: Bug fixes • PBL tool: Bug fixes
QCVS 4.22	<ul style="list-style-type: none"> • DDR tool: LX2 PHY errata • DDR tool: Add quick Rd2D • DDR tool: Add High-Effort WrDQ1D • DDR tool: Bug fixes • SerDes tool: Alpha support for LX2
QCVS 4.21	<ul style="list-style-type: none"> • DDR tool: LX2 phy driver updated to version 2019.04 • DDR tool: Support for LX2 rev 2 • DDR tool: DDR data rate should be included in exported file
QCVS 4.20	<ul style="list-style-type: none"> • DDR tool: Stress tests scenario • DDR tool: Mocked SPD for discrete DDR4 with TFA • DDR too: Bug fixes
QCVS 4.19	<ul style="list-style-type: none"> • PBL tool: Bug fixes • DDR tool: Bug fixes
QCVS 4.18	<ul style="list-style-type: none"> • PBL tool: Bug fixes • DDR tool: LX2 Diagnostic data Eye • DDR tool: Export validation results as JPG • DDR tool: Bug fixes
QCVS 4.17	<ul style="list-style-type: none"> • PBL tool: Bug fixes • DDR tool: Compatibility with A-TF • DDR tool: Bug fixes • PinMux: Support for LS1028A
QCVS 4.16	<ul style="list-style-type: none"> • LS1028A support (DDR and PBL) • General bug fixes
QCVS 4.15	<ul style="list-style-type: none"> • LS1088ARDB-PB support • LS1012FRWY-1Gb

Revision history

	<ul style="list-style-type: none"> • PBL tool: Full data driven support • PBL tool: Access to all RCW Reserved bites • PBL tool: Editable RCW registers view • PBL tool: Warn about missing of PBI commands • PBL tool: Bug fixes • DDR tool: Per bit test for Read margin on LX2 • DDR tool: Option to switch between per bit/per byte view for margin tests on LX2 • DDR tool: Option to run in per bit/per byte mode for margin tests on LX2 • DDR tool: Address Parity support for UDIMM and RDIMM • DDR tool: Import DDR PHY parameters • DDR tool: UBoot load and execute in DDR • DDR tool: Bug fixes
QCVS 4.14	<ul style="list-style-type: none"> • LX2160A support (DDR and PBL) • DDR tool: Add Walking Ones/Zeros tests for LS1012A • DDR tool: DMA test does not accept address range higher than 0x7FFFFFFF • DDR tool: Data driven support for DDR wizard • DDR tool: Bug fixes • PBL tool: Bug fixes • PinMuxing tool: LS1012 - QCVS doesn't make the difference between CPU revisions for PinMux
QCVS 4.13	<ul style="list-style-type: none"> • DDR tool: Bug fixes • DDR tool: RCW override GUI support • DDR tool: DMA test for LS1012 • DDR tool: Allow skipping WRLV start search table • PBL tool: Bug fixes • PinMux tool: Bug fixes • SerDes tool: Bug fixes • SerDes tool: Support for LS1012
QCVS 4.12	<ul style="list-style-type: none"> • DDR tool: Data eye display for Read and Write margins for DDR4 working above 1600 MT/s • DDR tool: Option to select Write leveling searching method • DDR tool: Message saying which method is selected for WRLV searcher • DDR tool: DDR clock default values per target provided in wizard • DDR tool: Any tables from Centering the clock can be disabled/enabled by user • DDR tool: Fixes for LS2088A DDR controller 3 • DDR tool: The total maximum skew for any byte line limited to 250 mm
QCVS 4.10	<ul style="list-style-type: none"> • Supports only ARMv8 - based devices • LA1575 support (PBL and DDR) • DDR tool: Option to reset target between tests including GUI pref. drastically improves batch execution time • DDR tool: Tweaks for read margins algorithm

	<ul style="list-style-type: none"> • DDR tool: Write leveling values recognition based on skews • DDR tool: Automatically determination of DDR data rate based on DDR PLL ratio in DDR wizard page • DDR tool: Option to generate random pattern for BIST tests • SerDes tool: LS1046/LS1026 NPI support • PinMuxing tool: Support for LS1043A 23x23 SoC die
QCVS 4.9	<ul style="list-style-type: none"> • PBL tool: RCW validation • PBL tool: Read from target option in wizard • PBL tool: Choose system clock and DDR clock in wizard after Read from target • PBL tool: Remove hardcoded RCW option from wizard • DDR tool: 8 Gb support for LS1 DDR3L parts • DDR tool: 1800 MT/s and 2100 MT/s support for DDR4 parts • DDR tool: New method to determine best working write leveling start values • DDR tool: Faster executing Write Leveling margins • DDR tool: Allow changing of I2C_MUX/SPD_EEPROM_ADDR when Read SPD • Connection view GUI refactoring, connection cancel support
QCVS 4.8	<ul style="list-style-type: none"> • PBL tool: PBL swapping w/o CRC command swapped • PBL tool: RCW regs import from target • DDR tool: Improve margins test • DDR tool: DP-DDR controller support • DDR tool: Import from target option in wizard • SerDes tool: LS1088A/LS2088A NPI support • Remove support for BOOTROM tool, Hardware Device Tree tool, Frame Distributor Wizard tool
QCVS 4.7	<ul style="list-style-type: none"> • Delivered only as an installable update to CW-ARMv8/CW-ARMv7 • Added support for LS1046A, LS1088A, LS2088A and derivatives • PBL tool: Optional generation of swapped PBL • PBL tool: Ability to import swapped PBL • PBL tool: Performance improvements operating with large PBL files • DDR tool: Ability to read DDR configuration directly from the target • DDR tool: Ability to generated PBI commands used for DDR initialization • DDR tool: Generated U-Boot DDR initialization code aligned with recent BSP/SDKs • PinMuxing tool: HTML report generation • PinMuxing tool: Support for deselecting individuals signals from an assigned module • PinMuxing tool: Ability to assign entire modules or individual pins from a module • Various GUI tweaks
QCVS 4.6	<ul style="list-style-type: none"> • PBL tool: Added support for LS1012A

System requirements

	<ul style="list-style-type: none">• DDR tool: Added support for LS1012A, included validation error advisor, and added Read & Write Margin support for ARMv8-based devices• SerDes tool: Added support for LS2040A/80A• PinMuxing tool: Added support for LS2040A/80A/85A, LS1043A/23A, and LS1012A, and improved pin allocation• Removed PA support, which is frozen at the level of QCVS 4.5
QCVS 4.5	<ul style="list-style-type: none">• New PinMuxing tool. Supported for LS1020A/21A/22A• LS2040A/80A, LS1023A support (PBL and DDR)• New DDR validation tests for ARMv8-based devices (qDMA, Write Read Compare, Walking Ones/Zeros)• DDR Read & Write Margin support for ARMv7-based devices
QCVS 4.4.1	<ul style="list-style-type: none">• T1013/23 rev 1.0 support
QCVS 4.4	<ul style="list-style-type: none">• SerDes tool: Errata support, LS1043A rev 1.0 support• FDW: LS1043/23 rev 1.0 support• DDR tool: Advanced DDR validation errors reporting• PBL tool: Better PBL errata notification
QCVS 4.3	<ul style="list-style-type: none">• New tool in the suite: Frame Distributor Wizard (FDW), addressing PCD configuration for DPAA 1.x IP block• SerDes support for LS102x (rev 1.0 and rev 2.0) and LS2085 (rev 1.0) devices• Support for LS1020/1/2 rev 2.0 devices• Support for LS1043A rev 1.0 device (PBL and DDR only)
QCVS 4.2.1	Access to target via DAP for LS2085 device
QCVS 4.2	<ul style="list-style-type: none">• New tool in the suite: SerDes Configuration and Validation• DDR4 support• LS2085 support for DDR, PBL, and Hardware Device Tree Editor
QCVS 4.1.1	None
QCVS 4.1	DDR write and read margin scenarios

3. System requirements

Hardware

- *Windows® OS*: Intel® Pentium® 4 processor, 2 GHz or faster, Intel® Xeon™, Intel® Core™, AMD Athlon™ 64, AMD Opteron™, or higher
- *Linux® OS*: 1.8 GHz Intel® Pentium® class processor (or better)
- At least 2 GB of RAM
- At least 3 GB of free disk space
- Internet connectivity for web downloads and update access

Operating system

This list reflects the set of operating systems the final build has been verified with:

- Windows 7 Professional (64-bit)
- Windows 10 (64-bit)
- Ubuntu 16.04 LTS (64-bit)
- Ubuntu 18.04 LTS (64-bit)
- Ubuntu 20.04 LTS (64-bit)
- Fedora 31 (64-bit)
- Mint 19.x (64-bit)
- RedHat Enterprise Linux / CentOS 7.8 (64-bit)
- RedHat Enterprise Linux / CentOS 8.2 (64-bit)

4. Supported devices

The table below lists the QorIQ processors and NXP boards containing the processors this release has been tested with. If your processor revision or board is not listed, it does not mean that QCVS would not work with it. It just means that the product has not been tested with it.

Table 2: Supported devices

SoC name	SoC revisions	Supported tools			
		PBL	DDRv	SerDes	PinMuxing
LA1575	1.0	✓	✓		
LS1012A	1.0	✓	✓	✓	✓
LS1023A/43A	1.0	✓	✓	✓	✓
LS1026A/46A	1.0	✓	✓	✓	✓
LS1028A	1.0	✓	✓		✓
LS1044A/48A	1.0	✓	✓	✓	✓
LS1084A/88A	1.0	✓	✓	✓	✓
LS2044A/84A	1.0	✓	✓	✓	✓
LS2048/88A	1.0	✓	✓	✓	✓
LX2160A	1.0, 2.0	✓	✓	✓	

5. New in this release

Listed below are new features added in the QCVS 4.23 release:

- NPI support:
 - NA
- PBL tool enhancements:
 - Bug fixes
- DDR tool enhancements:
 - Memtester
 - Warm boot for memory tests
 - New algorithm for ATx delay for LX216x
 - Import DDRC and PHY TFA output for LX216x
 - Import/Export LX216x PHY parameters
 - LX216x maximal debug log for PHY messages
 - Bug fixes
- SerDes tool enhancements:
 - Support for LX216x
 - Bug fixes
- PinMuxing tool enhancements:
 - NA

6. Product installation

QCVS can be installed from:

- Online installation
 - CW4NET installer. For more details on CW4NET, see [CodeWarrior Development Suites for Networked Applications](#).
 - As an update for ARMv8 installed from CW4NET installer
- Offline installation by downloading the CW4NET installation

See [QCVS Installation Guide](#) for more details.

7. Licensing

The following components of QCVS are licensed:

- PBL Validation
- DDR Validation
- SerDes Validation

To request a license, click [here](#).

8. Documentation

The following documents are included with the product:

- Product Brief
- Product user guides
 - Installation Guide
 - Getting Started Guide
 - FAQ Guide
- Tool-specific user guides
 - PBL Tool User Guide
 - DDR Tool User Guide
 - SerDes Tool User Guide
 - PinMuxing Tool User Guide

The QCVS documentation is available in the QCVS layout, [CodeWarrior Development Suites for Networked Applications](#), and online documentation portal, [QCVS Knowledge Center](#).

9. Known issues and limitations

9.1 Known issues

The table below lists the known issues in this release.

Table 3: Known issues

ID	Headline
QCS-5627	[DDR] Write margin tests sometimes fail when Vref shmooring is enabled Workaround: Disable Vref shmooring from Window -> Preferences -> Processor Expert -> DDR validation, section Options - Disable VRef shmooring for read and write margins
QCS-5834	[PBL] PBI data is not generated after you modify serdes protocol Workaround: Modify serdes protocol from Register view
QCS-5983	[SerDes] Component doesn't open if progress bar isn't completely loaded Workaround: User needs to wait until the progress bar completes loading the SerDes component

9.2 Known limitations

General limitations:

- USB TAP probe is no longer officially supported. While QCVS allows connection using USB TAP probe for some device that might not work. Instead, we strongly advise using CodeWarrior TAP probe.

PBL limitations:

- The conversion of PBL components from an older to a newer version of QCVS is not supported. Importing a workspace created with an older version of QCVS into a newer version of QCVS may result in errors in PBL components, which cannot be manually fixed.

Workaround:

- Generate code for the PBL components created with the older version of QCVS, using the QCVS version they were created with.
- Import the generated code into a PBL component created with the new version of QCVS.

SerDes limitations:

- The validation has been formally tested only using a relevant subset of the possible combinations for: pattern, count window size, and lane protocol/speed configuration.

9.3 Installation errata

Installing QCVS over standalone ARMv8

QCVS can no longer be installed over a standalone CodeWarrior for ARMv8 installation. Instead QCVS must be installed over CodeWarrior for ARMv8 installed from a CW4NET installation. For more details on CW4NET, see [CodeWarrior Development Suites for Networked Applications](#).

10. Help and support

If you have questions, issues, or want to provide feedback about the QCVS software, follow these steps:

1. Go to “CodeWarrior for QorIQ” community page, <https://community.nxp.com/community/codewarrior/cw-qorig>.
2. Log in / register to the community.
3. Post your question, issue, or idea to the community forum.

How to Reach Us:

Home Page:
nxp.com

Web Support:
nxp.com/support

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