

Gennum GN412x RDK Software Release Notes

Version 1.3
August, 2009

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Overview

This document encloses the difference to the previous releases. All last minute changes and information not contained in the printed material are described.

[Version 1.3, August 2009]

The following components have been updated:

- GenDiag Utility (Version 1.4)
 - o Fixed numerous typo found across different interfaces.
 - o Fixed incorrect memory BAR size report by the system status feature.
 - o Update interrupt handling mechanism. The kernel level ISR now masks off the interrupt source to prevent multiple interrupt triggers before the user level ISR is called.
 - o Fixed compilation issue in MS Visual Studio. Note that WD_BASEDIR environment variable must be set correctly for compilation.
 - o Fixed I2C EEPROM access function under Linux where writing to EEPROM may fail.
 - o Fixed local bus clock unit test failure when the local bus is disabled.
 - o Perform graceful reset sequence on the RSTOUT signal and the local bus for the FCL programming process. This is recommended for typical applications.
 - o Update reset sequence on the RSTOUT signal in the local bus clock unit test.
 - o (Linux only) Update kernel module driver according to the changes in interrupt handling.
 - o (Linux only) MSI interrupt is now automatically enabled where it is applicable.
 - o (Linux only) By default auto module loading at system start up is enabled after module is installed in the kernel.
 - o (Linux only) Rename kernel driver to “gn_pcie” from “GN412x”. Kernel module is named “gn_pcie”.

- AVDMA412x WDM driver (Version 1.0.5) [Windows platform only]
 - o Modified “avdma412x.inf” to disable support for 64 bits Windows target (AMD64).
 - o Create compilation error message when building for AMD64 build environment. 64bits Windows driver support requires code modification and currently it is not supported.
 - o Fixed incorrect local bus clock settings for GN4121. GN4124 is setup to run at 160MHz while GN4121 is setup at 100MHz.

[Version 1.2, May 2009]

This is the first GN412x RDK software release with the Linux support. The Linux version of the RDK will only contain the GenDiag Utility. Completed source code of the kernel device driver is also provided. The kernel device driver is compatible with kernel version 2.6 (minimum 2.6.22.18 is required).

The following components have been updated:

- GenDiag Utility (Version 1.3)
 - o Update interrupt testing routines to include falling edge and low level GPIO interrupts, and interrupts in GPIO bypass mode.
 - o Introduce bit swapping parameter in FCL APIs to support the Raw Binary File (RBF) FPGA programming file from the Altera toolset.

[Version 1.1, April 2009]

This release combines the WDM video capture driver previously released as GN4124 Gullwing RDK version 1.0 with all utilities released in GN4124 Gullwing RDK version 0.9.x. The following components have been update:

- All software included in the RDK support GN4124 and GN4121. The software RDK is now renamed to GN412x RDK.
- AVDMA412x WDM driver (Version 1.0.4)
 - o Add support for FPGA Configuration Loader (FCL). This eliminates the need to program the FPGA flash prior of driver installation. Separate FPGA firmware files (version 1.1) are included in this software release for the EB-GS2960 and the EB-GS1559 applications.
 - o Add support for 3Gb HD SDI inputs (requires optional EB-GS2960 hardware).
 - o Fix issues related to driver’s stability over time.
 - o Fix driver build issues.
- GenDiag Utility (Version 1.2)
 - o Fix bugs with EEPROM load from and save to file feature.
 - o Fix issue with first EEPROM read access returns incorrect data.
 - o Add new options in INI file.

- Add macro-based VDMA sequencer code generation. This replaces the original “code_gen_api” library. It is recommended for VDMA sequencer code development.
- Remove unused source code modules.
- Use dynamic linking with WDAPI9xx.DLL for CodeGear C++ Builder to unify the build process with MSVC.
- Shortcuts in the application start menu for installing the WDM driver and GenDiag driver dynamically.
- EEPROM Utility (Version 1.1)
- I2C Utility (Version 1.1)

[Version 1.0, January 2009]

The application demonstrates uncompressed video capture from a SDI input source to a Windows PC through the DirectShow application framework. The user will need to order the Gennum GS1559 Evaluation Board kit (part # EBK-GS1559-00), in addition of the GN4124 Gullwing RDK (part # RDK-4124-R09). A DirectShow capture filter is implemented using the WDM driver framework. User will require downloading the Windows Driver Kit (WDK) from Microsoft for recompiling the source code. For more information on how to obtain the WDK, visit <https://www.microsoft.com/whdc/DevTools/default.mspx>. The GraphEdit tool, which is provided in the WDK, will be use for building the DirectShow capture graph.

NOTE: This software release requires the FPGA firmware 1.0 release.

[Version 0.9.1, February 2009]

This release contains bug fixes and minor update to version 0.9. It contains the following components:

- GenDiag utility (Version 1.1)
 - Fix benchmark figures printout in the MB/s unit.
 - Support automatic startup bitstream file loading through INI file settings. The GN4124 Gullwing RDK SW4 settings must be set to “111” position to enable FCL.
 - Installation includes the bitstream file, `lambo.bin`, of FPGA firmware version 0.9.2.
 - Add menu option to access GN4124 registers by mnemonics.
 - Enable console output when output logging is enabled.
 - Add new test cases in unit testing.
 - Revise system status screen for improve readability.
 - For certain motherboard chipset, the P2L DMA tests (#14, 16, and 17 in Unit Testing) may report error that is due to out-of-order completion packets from multiple outstanding Memory Read Request transactions. Please refer to the release notes of FPGA firmware version 1.1 for details.

- EEPROM Utility (Version 1.0)
- I2C Utility (Version 1.0)

NOTE: This software release requires the FPGA firmware 0.9 release.

[Version 0.9, October 2008]

Initial RDK release with the following components:

- GenDiag utility (Version 1.0)
- EEPROM Utility (Version 1.0)
- I2C Utility (Version 1.0)

NOTE: This software release requires the FPGA firmware 0.9 release.

Known limitation / Issues

[AVDMA412x WDM driver Version]

- Testing with non-PCI Express graphics cards has not been conducted.

[GenDiag]

- For certain motherboard chipset, the P2L DMA tests (#16 and 17 in Unit Testing) may report error that is due to out-of-order completion packets from multiple outstanding Memory Read Request transactions. Please refer to the release notes of FPGA firmware version 1.1 for details.
- Access to the EEPROM through GenDiag will disable external I2C master access (such as the Gennum USB dongle). Reset the RDK board (by pressing the on-board SW8 switch or resetting the PC) will resolve the issue.
- (For GN4124 revision 1 silicon) In FCL programming, the user may experience system crash using the normal or the interrupt method when the CLK_DIV value is set to a low value. Please try a higher CLK_DIV value (i.e. lower FCL clock rate).

[EEPROM Utility]

- The program may return failure status during read or write operations. At this point connectivity to the Gennum USB dongle is lost and further retry would not succeed. The user is required to exit the program, disconnect the dongle from the PC, reconnect and restart the application.

[I2C Utility]

- The program may return failure status during a read or a write operation. At this point connectivity to the Gennum USB dongle is lost and further retry would not succeed. The user is required to exit the program, disconnect the dongle from the PC, reconnect and restart the application.

Contact Details

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