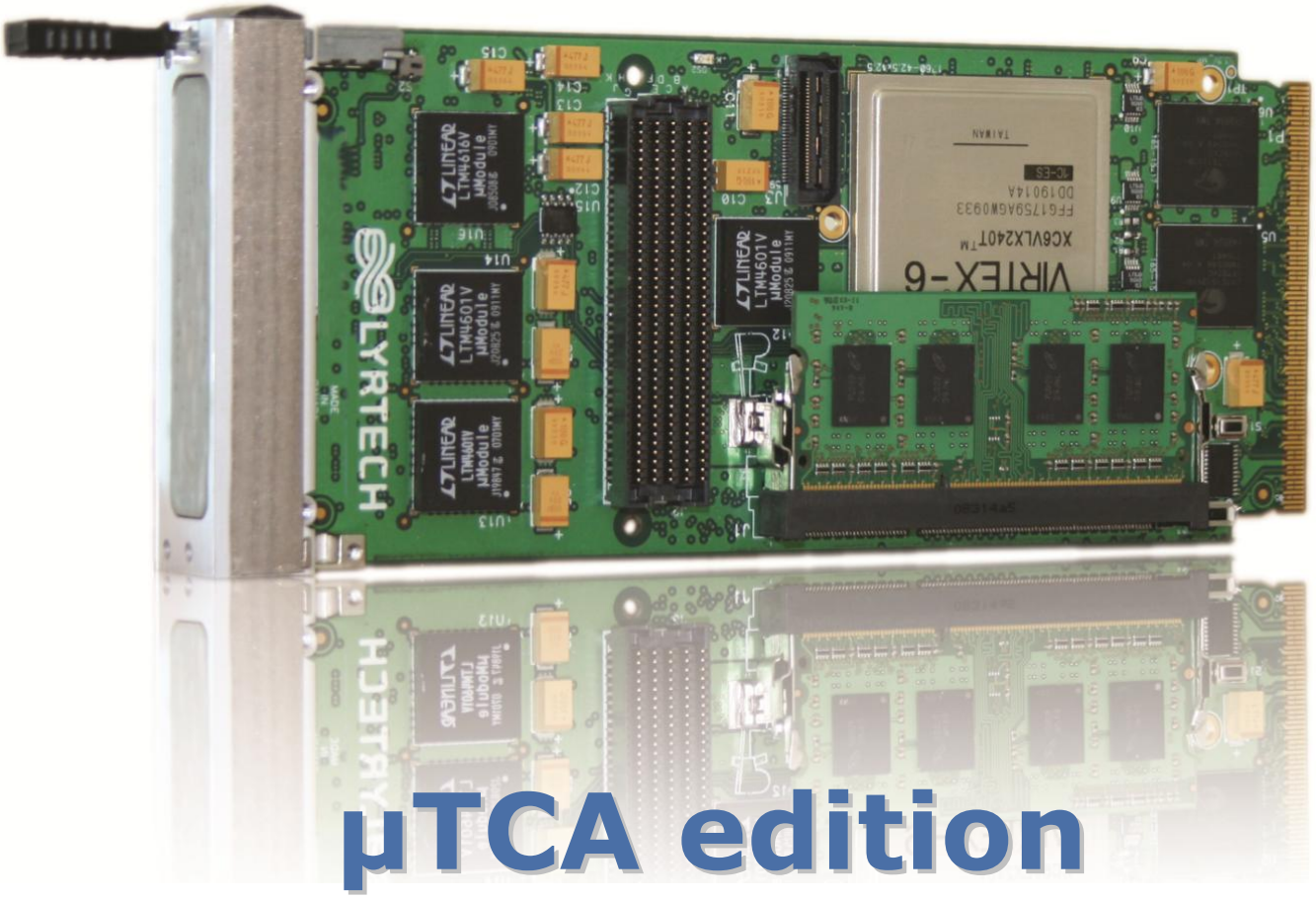
Nutaq® INNOVATION TODAY FOR TOMORROW®

Release Notes for ADP 6.6



µTCA edition

Table of Contents

1 Perseus 601x General

1.1 General

- ✓ Starting from CCE version 2.12.12, update to a new CCE (or older CCE as long as it is more recent than 2.12.12) can be done through the CLI.

1.2 BSP

New

- ✓ Added MO1000 BSP support

1.3 BSDK Windows

New

- ✓ Added MO1000 BSDK support
- ✓ Added System Monitor BSDK support and inserted System Monitor core in all BSDK examples.

Updated

- ✓ Added CLI functionality
  - CLI will halt script after first command error

1.4 BSDK Linux

- ✓ Added MO1000 BSDK support

1.5 MBDK

New

- ✓ Added MO1000 MBDK support
- ✓ Added System Monitor BSDK support and inserted System Monitor core in all BSDK examples.

1.6 Documentation – Major changes

New

- ✓ Upgrading to ADP 6.6.pdf
- ✓ MO1000 Programmer's Reference Guide
- ✓ MO1000 Examples document for Perseus
- ✓ MO1000 MBDK html documentation
- ✓ MO1000 User's Guide
- ✓ PicoDigitizer User’s Guide has been split in two documents, the PicoDigitizer125 User’s Guide (for both PicoDIgitizer125 and PicoDigitizer125-1000) and the PicoDigitizer250.

Updated

- ✓ Added MO1000 module to the CLI Programmer's Reference Guide
- ✓ The Perseus MBDK User's Guide has been updated for MO1000.
- ✓ The Matlab demonstration documentation listing has not been updated for MO1000.
- ✓ The System Monitor module has been added to the Perseus User's Guide.
- ✓ Added Software Support section to the PicoSDR and PicoDigitizer User' Guides
- ✓ Modified Perseus Firmware Update document to use modified *update_cce* command.
- ✓ Modified the Programmer's Reference Guide RTDEx to add the section 6.6 "Increasing the Throughput of the PCIe RTDEx"

2 MI125

2.1 BSP

New

- ✓ Added MO1000-MI125 stack BSP support
  - BSP example
- ✓ Corrected an issue that could prevent the MI125 calibration phase to succeed
- ✓ Corrected an issue that could cause sample errors in the MI125 acquisition even if the MI125 calibration succeeded.

2.2 BSDK Windows

- ✓ Added MO1000-MI125 stack BSDK support.
  - Visual Studio example
- ✓ Increased data retrieval speed in record example.
- ✓ Corrected an issue that could prevent the MI125 calibration phase to succeed

2.3 BSDK Linux

- ✓ Added MO1000-MI125 stack BSDK support
  - Makefile example
- ✓ Increased data retrieval speed in record example.

2.4 MBDK

- ✓ Added MO1000-MI125 stack BSDK support
  - MBDK example
- ✓ Corrected an issue that could prevent the MI125 calibration phase to succeed

2.5 Documentation

- ✓ Added MO1000-MI125 stack example procedure in the MO1000 Perseus Examples document
- ✓ Modified MI125 BSDK and MBDK example documents with up to date screenshots
- ✓ Corrected the MI125 FMC HPC pinout in the MI125 User's Guide.

2.6 Limitations

- ✓ When used in external clock mode, the clock must be between 67.5 MHz and 125 MHz.

3 MO1000

3.1 BSP

New

- ✓ Added BSP support
  - MO1000 FPGA core
  - MO1000 driver library
  - MO1000 BSP example

3.2 BSDK Windows

New

- ✓ Added BSDK support for Windows
  - MO1000 EAPI module
  - MO1000 CLI module
  - Xilinx Platform Studio example
  - Visual Studio example
  - CLI examples

3.3 BSDK Linux

New

- ✓ Added BSDK support for Linux
  - MO1000 EAPI module
  - MO1000 CLI module
  - Makefile example
  - CLI examples

3.4 MBDK

New

- ✓ Added MBDK support
  - MO1000 MBDK FPGA block
  - MO1000 MBDK FPGA example model
  - MO1000 MBDK Host block
  - MO1000 MBDK Host example model

3.5 Documentation

New

- ✓ Added MO1000 Programmer's Reference Guide
- ✓ Added MO1000 Examples document for Perseus
- ✓ Added MO1000 User's Guide
- ✓ Added MO1000 MBDK html documentation
- ✓ Added MO1000 module to CLI Programmer's reference Guide

3.6 Limitations

- ✓ Due to the amount of power required by the MO1000 FMC in a double-stack configuration, every Perseus on the field prior to November 1st 2014 needs to be modified to work properly in that mode, otherwise, unexpected reboot of the FMC can occur.
- ✓ The I2C communication with the MO1000 sometimes hangs. A reconfiguration of the MO1000 should be performed to get back to normal operation.
- ✓ There is a remote possibility (<1% chance) the MO1000 FMC calibration will take longer than usual, possibly terminating with an error code. If this happens, the calibration should be re-executed to get back to normal operation.
- ✓ All the tests were performed with a maximum data rate of 250MHz. Data rates up to 300MHz can be achieved by design, but will not be supported by Nutaq. Use at your own risk.
- ✓ In a dual stack master-slave clock configuration, there could be variable output skews (from boards configuration to next configuration) between the outputs of the master and the slave boards for DAC interpolation rates of 2x, 4x and 8x using the revision C of the board.

4 Other modules

4.1 RTDEx Module

- ✓ A new mode of operation of the RTDEx_Receive function has been added. The mode (eRTDExWaitTimeoutOrFirstError) will return with valid data after the first packet discontinuity in the data stream. This mode is responsible for the data retrieval speed upgrade when using the record/playback module. This mode of operation is only pertinent on the Gigabit Ethernet medium.

4.2 Record/Playback Module

- ✓ The adp_record_playback.c wrapper file has been modified to use the new RTDEx mode in order to significantly improve the performance of reading data from the Perseus memory.

4.3 Aurora Module

This module software support was not changed in this release

4.4 Radio420 Module

- ✓ Adjustments have been made to both the TX and RX automatic calibrations done by the Radio420 modules of the CCE. These adjustments are embedded in the CCE and the Radio420 standalone Microblaze library.
  - The LO leakage and Sideband suppression calibrations of the TX have been improved to produce better results across the frequency range of the Radio420.
  - The RX DC Offset calibration has also been improved to successfully calibrate the DC offset across all gain setups of the Radio420 RX.
- ✓ The Radio420 4x4 example has been modified to correct a release 6.5 problem in the initialization of the second Perseus

4.5 ADAC250 Module

This module software support was not changed in this release

4.6 MI250 Module

This module software support was not changed in this release

4.7 LVDS-xIn-xOut Module

This module software support was not changed in this release

4.8 ADC5000 Module

This module software support was not changed in this release

4.9 Mestor LVDS Module

This module software support was not changed in this release

4.10 2x10GE SFP+ Module

This module software support was not changed in this release

4.11 QSFP SFP+ Module

This module software support was not changed in this release

4.12 Unsupported Modules

The following modules are not supported by the release 6.6 of ADP Software Tools:

- ✓ USB-2-GPIO-32 adapted
- ✓ Radio421

5 Release Notes for ADP 6.5.0

5.1 Perseus 601x General

5.1.1 BSP

New

- ✓ Added Mestor LVDS core BSP support
- ✓ Added MI125WB support

5.1.2 BSDK Windows

New

- ✓ Added MI125WB support
- ✓ Added Mestor LVDS core BSDK support
- ✓ Added ADAC250 RTDEx streaming support
- ✓ Multi-bitstream boot support
- ✓ CLI firmware update support
- ✓ New Central Communication Engine version 2.12.24

Updated

- ✓ ADAC250 RTDEx Record and Playback example : added data streaming
- ✓ MI125 record example: example modified to accelerate data retrieval time and reduce the chances of transfer errors.
- ✓ Radio420 record example: example modified to accelerate data retrieval time and reduce the chances of transfer errors.
- ✓ RTDEx Host to Perseus example: example modified to display throughput and provide more flexibility in understanding the different parameters of the RTDEx

5.1.3 BSDK Linux

New

- ✓ Added MI125WB support
- ✓ Added Mestor LVDS core BSDK support
- ✓ Added ADAC250 RTDEx streaming support
- ✓ Multi-bitstream boot support
- ✓ CLI firmware update support
- ✓ New Central Communication Engine version 2.12.24

Updated

- ✓ ADAC250 RTDEx Record and Playback example : added data streaming
- ✓ MI125 record example: example modified to accelerate data retrieval time and reduce the chances of transfer errors.

- ✓ Radio420 record example: example modified to accelerate data retrieval time and reduce the chances of transfer errors.
- ✓ RTDEx Host to Perseus example: example modified to display throughput, provide more flexibility in understanding the different parameters of the RTDEx and to automatically detect and switch media between Gigabit Ethernet and PCI Express.
- ✓ RTDEx Perseus to Perseus example: example modified to automatically detect and switch media between Gigabit Ethernet and PCI Express.
- ✓ Record Playback example: example modified to automatically detect and switch media between Gigabit Ethernet and PCI Express.

5.1.4 MBDK

New

- ✓ Added MI125WB MBDK support
- ✓ Added Mestor LVDS core MBDK support
- ✓ Added ADAC250 RTDEx streaming MBDK support

Updated

- ✓ ADAC250 RTDEx Record and Playback example for data streaming

5.1.5 Documentation

New

- ✓ Upgrading to ADP 6.5.pdf

Updated

- ✓ Perseus firmware update.pdf: Updated procedures
- ✓ Perseus MBDK Guide.pdf : Updated with the new MBDK blocks
- ✓ Perseus User's Guide.pdf: Added Mestor expander and multi-bitstream boot information
- ✓ Configuring the Perseus IP address.pdf: Updated procedures
- ✓ Installing the PCI Express Drivers.pdf: Updated procedures
- ✓ All example guides

5.2 RTDEx Module

5.2.1 BSDK Windows

Updated

- ✓ The BSDK example was modified to better illustrate the RTDEx functionality.

5.2.2 BSDK Linux

Updated

- ✓ The BSDK example was modified to better illustrate the RTDEx functionality and to automatically detect and switch media between Gigabit Ethernet and PCI Express.

5.2.3 MBDK

This feature was not changed in this release.

5.2.4 Documentation

Updated

- ✓ Perseus_Examples_RTDEx.pdf: Added PicoSDR/Digitizer setup section and updated screenshots.

5.2.5 Limitations

- ✓ A Perseus can only have one RTDEx destination and source MAC address, meaning all 16 channels (8 RX an 8 TX channels) must communicate with the same peer.
- ✓ The Host Simulink blockset throughput is < 1MB/second full duplex. It is therefore not suitable for acquisition or transmission data streaming to and from Nutaq FMC daughter cards.

5.3 Record/Playback Module

5.3.1 BSDK Windows

This feature was not changed in this release.

5.3.2 BSDK Linux

Updated

- ✓ Record Playback example: example modified to automatically detect and switch media between Gigabit Ethernet and PCI Express.

5.3.3 MBDK Linux

This feature was not changed in this release.

5.3.4 Documentation

Updated

- ✓ Perseus_Examples_Record_Playback.pdf: Added PicoSDR/Digitizer setup section and updated screenshots.

5.4 Aurora Module

5.4.1 BSP

This feature was not changed in this release.

5.4.2 BSDK Linux

This feature was not changed in this release.

5.4.3 BSDK Linux

This feature was not changed in this release.

5.4.4 MBDK

New

- ✓ Corrected errors when using 1 or 2 Aurora cores.

5.4.5 Documentation

The documentation was not changed in this release.

5.5 Radio420

5.5.1 BSP

Updated

- ✓ Modified Radio420 clocking scheme to correct acquisition frequency configuration on the top Radio known issue from release 6.4

5.5.2 BSDK Windows

Updated

- ✓ Radio420 record example: example modified to accelerate data retrieval time and reduce the chances of transfer errors.

5.5.3 BSDK Linux

New

- ✓ Added OFDM example.

Updated

- ✓ Radio420 record example: example modified to accelerate data retrieval time and reduce the chances of transfer errors.

5.5.4 MBDK

Updated

- ✓ Updated OFDM example

5.5.5 GNU Radio

New

- ✓ Added Radio420 primitive functions for use outside GNU Radio Companion

- ✓ Added SPI bus control arbitration between the FPGA and the MicroBlaze from GNU Radio.
- ✓ Added OFDM example

5.5.6 Reference Design

New

- ✓ Created VC707 reference design for Radio420 1.8V

5.5.7 Documentation

Updated

- ✓ Perseus_Examples_Radio420.pdf: Added PicoSDR setup section and updated screenshots.
- ✓ Radio420 User's Guide.pdf: Minor corrections

5.5.8 Known Issues

- ✓ RX and TX at same frequencies: When configuring the RX and TX carrier frequencies at the same value, a jittery TX PLL configuration can occur. The PLL configuration function returns a success but the carrier clock still shows jitter. This problem can occur at any RF frequency (300 MHz to 3 GHz), but occurs more in the high band (1500 MHz to 3 GHz).
  Reprogramming the Radio420 will solve the problem.

5.6 ADAC250

5.6.1 BSP

This feature was not changed in this release.

5.6.2 BSDK Windows

New

- ✓ Added RTDEx streaming support in the ADAC250 RTDEx Record Playback Example for Gigabit Ethernet and PCI Express

Updated

- ✓ Record example modified to accelerate data retrieval time and reduce the chances of transfer errors.

5.6.3 BSDK Linux

New

- ✓ Added RTDEx streaming support in the ADAC250 RTDEx Record Playback Example for Gigabit Ethernet and PCI Express

Updated

- ✓ Record example modified to accelerate data retrieval time and reduce the chances of transfer errors.

5.6.4 MBDK

New

- ✓ Added RTDEx streaming support in the ADAC250 RTDEx Record Playback Example for Gigabit Ethernet and PCI Express

5.6.5 GNU Radio

New

- ✓ Added ADAC250 GNU Radio Support

5.6.6 Documentation

Updated

- ✓ Perseus_Examples_ADAC250.pdf: Document updated to reflect the ADAC250 example modifications and to add PicoDigitizer setup section.
- ✓ MBDK example document: Document updated to reflect the ADAC250 example modifications.

5.6.7 Limitations

- ✓ The ADAC250 can be used from 50 MHz to 250 MHz. The ADAC250 BSDK and MBDK examples have to be modified to fully support the low frequencies (50 MHz to 150 MHz) The ADAC250 pcore parameters must be set for the required ADC and DAC frequencies. It is set by default to 250 MHz in the examples.

5.7 MI250

5.7.1 BSP

This feature was not changed in this release.

5.7.2 BSDK Windows

This feature was not changed in this release.

5.7.3 BSDK Linux

This feature was not changed in this release.

5.7.4 MBDK

This feature was not changed in this release.

5.7.5 Reference Design

This feature was not changed in this release.

5.7.6 Documentation

The documentation was not changed in this release.

5.7.7 Limitations

- ✓ The MI250 can be used from 50 MHz to 250 MHz. The MI250 BSDK and MBDK examples have to be modified to fully support the low frequencies (50 MHz to 150 MHz) The MMCM parameters must be set for the required ADC frequency. It is set by default to 250 MHz in the examples.

5.8 MI125

5.8.1 BSP

New

- ✓ Added MI125WB support

5.8.2 BSDK Windows

New

- ✓ Added MI125WB support

Updated

- ✓ MI125 record example: example modified to accelerate data retrieval time and reduce the chances of transfer errors.

5.8.3 BSDK Linux

New

- ✓ Added MI125WB support

Updated

- ✓ MI125 record example: example modified to accelerate data retrieval time and reduce the chances of transfer errors.

5.8.4 MBDK

New

- ✓ Added MI125WB support

Updated

- ✓ MI125 record example: example modified to accelerate data retrieval time and reduce the chances of transfer errors.

5.8.5 Documentation

Updated

- ✓ Perseus_Examples_MI125.pdf: Added PicoSDR setup section and updated screenshots
- ✓ MI125 User's Guide.pdf: Modified to add MI125WB information

5.8.6 Limitations

- ✓ When used in external clock mode, the clock must be between 67.5 MHz and 125 MHz.

5.9 LVDS-xIn-xOut

5.9.1 BSP

This feature was not changed in this release.

5.9.2 BSDK Windows

This feature was not changed in this release.

5.9.3 BSDK Linux

This feature was not changed in this release.

5.9.4 MBDK

This feature was not changed in this release.

5.9.5 Documentation

The documentation was not changed in this release.

5.9.6 Limitations

- ✓ LVDS-xIn-xOut Sync mode supports transfers of up to 100 MHz only.

5.10 ADC5000

5.10.1 BSP

Updated

- ✓ Corrected a hardware version detection issue

5.10.2 BSDK Windows

This feature was not changed in this release.

5.10.3 BSDK Linux

This feature was not changed in this release.

5.10.4 MBDK

This feature was not changed in this release.

5.10.5 Documentation

The documentation was not changed in this release.

5.11 Mestor LVDS support

5.11.1 BSP

New

- ✓ Added Mestor LVDS BSP support
- ✓ Added Mestor LVDS BSP example

5.11.2 BSDK Windows

New

- ✓ Added Mestor LVDS BSDK support
- ✓ Added Mestor LVDS BSDK example

5.11.3 BSDK Linux

New

- ✓ Added Mestor LVDS BSDK support
- ✓ Added Mestor LVDS BSDK example

5.11.4 MBDK

New

- ✓ Added Mestor LVDS MBDK support
- ✓ Added Mestor LVDS MBDK example.

5.11.5 Documentation

New

- ✓ Added the following documents:
  - Perseus_Examples_Mestor.pdf
  - Programmer's Reference Guide LVDS.pdf

5.12 2x10GE SFP+

5.12.1 BSP

This feature was not changed in this release.

5.12.2 Documentation

This feature was not changed in this release.

5.13 QSFP SFP+

5.13.1 BSP

This feature was not changed in this release.

5.13.2 Documentation

This feature was not changed in this release.

5.14 Unsupported Modules

The following modules are not supported by the release 6.5.0 of ADP Software Tools:

- ✓ USB-2-GPIO-32 adapted
- ✓ Radio421

6 Release Notes for ADP 6.4.0

6.1 Perseus 601x General

6.1.1 BSP

New

- ✓ Added Aurora core BSP support
- ✓ Added PPS Sync BSP support for ADAC250 and Radio420.

6.1.2 BSDK Windows

New

- ✓ Added PPS Sync BSDK support
- ✓ Added Aurora core BSDK support
- ✓ New Central Communication Engine version 2.8.4

Updated

- ✓ Radio420 RTDEx Record and Playback example was redesigned to improve usability.
- ✓ MI125 record example: example modify to fit ADP standard examples

6.1.3 BSDK Linux

New

- ✓ Added PPS Sync BSDK support
- ✓ Added Aurora core BSDK support
- ✓ New Central Communication Engine version 2.8.4

Updated

- ✓ Radio420 RTDEx Record and Playback example was redesigned to improve usability.
- ✓ MI125 record example: example modify to fit ADP standard examples

6.1.4 MBDK

New

- ✓ Added full ADC5000 MBDK support
- ✓ Added MBDK host blocks for the following FMC cards: ADAC250, MI125, MI250, ADC5000, LVDS
- ✓ Added MBDK host blocks for the following Perseus features: Record and Playback.

Updated

- ✓ Modified MBDK host blocks for the following FMC cards: Radio420

- ✓ Added MBDK host blocks for the following Perseus features: RTDEx and Custom Registers
- ✓ Added bi-directional streaming support in the QAM-64 OFDM applicative demonstration

6.1.5 Documentation

New

- ✓ Upgrading to ADP 6.4 pdf
- ✓ Programmer's Reference Guide Aurora.pdf
- ✓ Perseus_Examples_Aurora.pdf
- ✓ PicoDigitizer User's Guide.pdf
- ✓ PicoDigitizer125 Quick Start Guide.pdf
- ✓ PicoDigitizer250 Quick Start Guide.pdf
- ✓ Added HTML documentation for the following FMC cards host blocks: ADAC250, MI125, MI250, ADC5000, LVDS
- ✓ Added HTML documentation for the following Perseus features: Record and Playback
- ✓ Added HTML documentation for the Aurora core MBDK System Generator block and MBDK Aurora example procedure

Updated

- ✓ All MBDK HTML example procedures with MBDK host examples
- ✓ PicoSDR Quick Start Guide.pdf with new QAM-64 OFDM demonstration procedure
- ✓ PicoSDR User's Guide.pdf with PicoSDR examples procedures
- ✓ Programmer's Reference Guide ADAC250.pdf with PPS Sync support
- ✓ Perseus_Examples_ADAC250.pdf with PPS Sync example procedures and merge of the Windows and Linux Example procedure.
- ✓ Perseus_Examples_ADC5000.pdf: Merge of the Windows and Linux Example procedure.
- ✓ Perseus_Examples_MI125.pdf: Merge of the Windows and Linux Example procedure.
- ✓ Perseus_Examples_MI250.pdf: Merge of the Windows and Linux Example procedure.
- ✓ Programmer's Reference Guide Radio420.pdf with PPS Sync support
- ✓ Perseus_Examples_Radio420.pdf: Completely modified example procedure.
- ✓ Perseus_Examples_Record_Playback.pdf: Merge of the Windows and Linux Example procedure.
- ✓ Perseus_Examples_RTDEx.pdf: Merge of the Windows and Linux Example procedure.
- ✓ Modified HTML documentation for the following FMC cards host blocks: Radio420
- ✓ Modified HTML documentation for the following Perseus features: RTDEx and Custom Registers

6.2 RTDEx Module

6.2.1 BSDK Windows

This feature was not changed in this release.

6.2.2 BSDK Linux

Updated

- ✓ PCI Express driver was corrected to handle properly data transfers lower that 128KBytes

6.2.3 MBDK

Updated

- ✓ The RTDEx MBDK host block was corrected to handle properly non-independent data transfers.

6.2.4 Documentation

Updated

- ✓ Perseus_Examples_RTDEx.pdf: Merge of the Windows and Linux Example procedure.
- ✓ MBDK host block HTML document
- ✓ MBDK example document

6.2.5 Limitations

- ✓ A Perseus can only have one RTDEx destination and source MAC address, meaning all 16 channels (8 RX an 8 TX channels) must communicate with the same peer.
- ✓ The Host Simulink blockset throughput is < 1MB/second full duplex. It is therefore not suitable for acquisition or transmission data streaming to and from Nutaq FMC daughter cards.

6.2.6 Known issues

6.3 Record/Playback Module

6.3.1 BSDK Windows

This feature was not changed in this release.

6.3.2 BSDK Linux

This feature was not changed in this release.

6.3.3 MBDK Linux

New

- ✓ Added Record/Playback MBDK host block

6.3.4 Documentation

Updated

- ✓ Perseus_Examples_Record_Playback.pdf: Merge of the Windows and Linux Example procedure.
- ✓ MBDK host block HTML document
- ✓ MBDK example document

6.4 Aurora Module

6.4.1 BSP

New

- ✓ Added Aurora core support for PicoSDR and PicoDigitizer

6.4.2 BSDK Linux

New

- ✓ Added Aurora core support for PicoSDR and PicoDigitizer

6.4.3 BSDK Linux

New

- ✓ Added Aurora core support for PicoSDR and PicoDigitizer

6.4.4 MBDK Linux

New

- ✓ Added Aurora core support for PicoSDR and PicoDigitizer

6.4.5 Documentation

New

- ✓ Perseus_Examples_Aurora.pdf
- ✓ Programmer's Reference Guide Aurora.pdf

6.5 Radio420

6.5.1 BSP

New

- ✓ Added PPS Sync support

6.5.2 BSDK Windows

New

- ✓ Added PPS Sync support

Updated

- ✓ Radio420 RTDEx Record and Playback example was redesigned to improve usability.

6.5.3 BSDK Linux

New

- ✓ Added PPS Sync support

Updated

- ✓ Radio420 RTDEx Record and Playback example was redesigned to improve usability.

6.5.4 MBDK

New

- ✓ Added PPS Sync support

Updated

- ✓ The Radio420 MBDK host block was corrected to handle properly high-band frequencies.
- ✓ Improved QAM-64 OFDM applicative demonstration with bi-directional streaming.

6.5.5 Documentation

Updated

- ✓ Programmer's Reference Guide Radio420.pdf with PPS Sync support
- ✓ Perseus_Examples_Radio420.pdf: New procedure for new example
- ✓ MBDK host block HTML document
- ✓ MBDK example document

6.5.6 Known Issues

- ✓ RX and TX at same frequencies: When configuring the RX and TX carrier frequencies at the same value, a jittery TX PLL configuration can occur. The PLL configuration function returns a success but the carrier clock still shows jitter. This problem can occur at any RF frequency (300 MHz to 3 GHz), but occurs more in the high band (1500 MHz to 3 GHz).
  Reprogramming the Radio420 will solve the problem.

- ✓ Acquisition frequency configuration on the top Radio: In MIMO configuration, a top Radio DAC de-synchronization can occur. The DAC data is not latched at the proper moment in the RF chip which leads to data corruption on the transmitter.
  The problem can occur at all DAC frequencies. It has been observed on 1/50 of PLL configurations using a 6-inch MMCX-MMCX cable between the bottom Radio420 Rout connector and the top Radio420 Rin connector.
  Use the shortest possible cable between Rout and Rin connectors.
  Reprogramming the Radio420 will solve the problem.

6.6 ADAC250

6.6.1 BSP

Updated

- ✓ Added PPS Sync support

6.6.2 BSDK Windows

New

- ✓ Added PPS Sync support

6.6.3 BSDK Linux

New

- ✓ Added PPS Sync support

6.6.4 MBDK

New

- ✓ Added PPS Sync support
- ✓ Added ADAC250 MBDK host block and example

6.6.5 Documentation

New

- ✓ Added MBDK host block HTML document

Updated

- ✓ Programmer's Reference Guide ADAC250.pdf with PPS Sync support
- ✓ Perseus_Examples_ADAC250.pdf: Merge of the Windows and Linux Example procedure and addition of ADAC250 PPS Sync example
- ✓ MBDK example document

6.6.6 Limitations

- ✓ The ADAC250 can be used from 50 MHz to 250 MHz. The ADAC250 BSDK and MBDK examples have to be modified to fully support the low frequencies (50 MHz to 150 MHz) The ADAC250 pcore parameters must be set for the required ADC and DAC frequencies. It is set by default to 250 MHz in the examples.

6.7 MI250

6.7.1 BSP

This feature was not changed in this release.

6.7.2 BSDK Windows

This feature was not changed in this release.

6.7.3 BSDK Linux

This feature was not changed in this release.

6.7.4 MBDK

New

- ✓ Added MI250 MBDK host block and example

6.7.5 Reference Design

This feature was not changed in this release.

6.7.6 Documentation

New

- ✓ Added MBDK host block HTML document

Updated

- ✓ Perseus_Examples_MI250.pdf: Merge of the Windows and Linux Example procedure
- ✓ MBDK example document

6.7.7 Limitations

- ✓ The MI250 can be used from 50 MHz to 250 MHz. The MI250 BSDK and MBDK examples have to be modified to fully support the low frequencies (50 MHz to 150 MHz) The MMCM parameters must be set for the required ADC frequency. It is set by default to 250 MHz in the examples.

6.8 MI125

6.8.1 BSP

This feature was not changed in this release.

6.8.2 BSDK Windows

Updated

- ✓ Modified example to match ADP standard examples.
- ✓ Corrected channel calibration issue on SX315 and LX550 Virtex-6 FPGAs

6.8.3 BSDK Linux

Updated

- ✓ Modified example to match ADP standard examples.
- ✓ Corrected channel calibration issue on SX315 and LX550 Virtex-6 FPGAs

6.8.4 MBDK

New

- ✓ Added MI250 MBDK host block and example.

Updated

- ✓ Modified example to match ADP standard examples.
- ✓ Corrected channel calibration issue on SX315 and LX550 Virtex-6 FPGAs

6.8.5 Documentation

New

- ✓ Added MBDK host block HTML document

Updated

- ✓ Perseus_Examples_MI125.pdf: Merge of the Windows and Linux Example procedure and new example procedure
- ✓ MBDK example document

6.8.6 Limitations

- ✓ When used in external clock mode, the clock must be between 67.5 MHz and 125 MHz.

6.9 LVDS-xIn-xOut

6.9.1 BSP

This feature was not changed in this release.

6.9.2 BSDK Windows

This feature was not changed in this release.

6.9.3 BSDK Linux

This feature was not changed in this release.

6.9.4 MBDK

New

- ✓ Added LVDS xIn xOut MBDK host block and example.

6.9.5 Documentation

New

- ✓ Added MBDK host block HTML document

Updated

- ✓ Perseus_Examples_LVDS-xIn-xOut.pdf: Merge of the Windows and Linux Example procedure and new example procedure
- ✓ MBDK example document

6.9.6 Limitations

- ✓ LVDS-xIn-xOut Sync mode supports transfers of up to 100 MHz only.

6.10 ADC5000

6.10.1 BSP

This feature was not changed in this release.

6.10.2 BSDK Windows

This feature was not changed in this release.

6.10.3 BSDK Linux

This feature was not changed in this release.

6.10.4 MBDK

New

- ✓ Full MBDK support has been added

6.10.5 Documentation

New

- ✓ Added MBDK host block HTML document
- ✓ Added MBDK System Generator block HTML document
- ✓ Added MBDK example document

Updated

- ✓ Perseus_Examples_ADC5000.pdf: Merge of the Windows and Linux Example procedure and new example procedure

6.11 2x10GE SFP+

6.11.1 BSP

This feature was not changed in this release.

6.11.2 Documentation

This feature was not changed in this release.

6.12 QSFP SFP+

6.12.1 BSP

This feature was not changed in this release.

6.12.2 Documentation

This feature was not changed in this release.

6.13 Unsupported Modules

The following modules are not supported by the release 6.4.0 of ADP Software Tools:

- ✓ USB-2-GPIO-32 adapted
- ✓ Radio421

7 Release Notes for ADP 6.3.0

7.1 Perseus 601x General

7.1.1 BSDK Windows

New

- ✓ Added ADC5000 support

Updated

- ✓ Radio420 Record/Playback and Streaming examples have been modified to support MIMO4x4.
- ✓ Modified Radio420 examples default frequencies

7.1.2 BSDK Linux

New

- ✓ Added ADC5000 support
- ✓ Added Radio420 PCI Express Streaming Example

Updated

- ✓ Corrected PCIe driver for Radio420x streaming
- ✓ Modified Radio420 example default frequencies

7.1.3 MBDK

New

- ✓ Added DDR3 Sodimm automatic size detection.
- ✓ Added PCI Express support.
- ✓ Record Playback example simplified.

Updated

- ✓ Radio420 Record/Playback and Streaming examples have been modified to support MIMO4x4.

7.1.4 Documentation

New

- ✓ Upgrading to ADP 6.3.pdf
- ✓ ADC5000 User's Guide.pdf

- ✓ Programmer's Reference Guide ADC5000.pdf
- ✓ Perseus_Examples_ADC5000.pdf
- ✓ PicoSDR User's Guide.pdf
- ✓ PicoSDR Quick Start Guide.pdf

Updated

- ✓ ADP_MicroTCA_Overview.htm
- ✓ mbdk_demo_perseus601x_radio420_streaming.htm: Updated for MIMO4x4
- ✓ mbdk_demo_perseus601x_radio420_recordplayback.htm
- ✓ Programmer's Reference Guide Command Line Interface.pdf: Added ADC5000

7.2 RTDEx Module

7.2.1 BSDK Windows

This feature was not changed in this release.

7.2.2 BSDK Linux

Updated

- ✓ PCI Express driver modified for Radio420 steraming example and Kernel 3.8.13.

7.2.3 MBDK

This feature was not changed in this release.

7.2.4 Documentation

This feature was not changed in this release.

7.2.5 Limitations

- ✓ A Perseus can only have one RTDEx destination and source MAC address, meaning all 16 channels (8 RX an 8 TX channels) must communicate with the same peer.
- ✓ The Host Simulink blockset throughput is < 1MB/second full duplex. It is therefore not suitable for acquisition or transmission data streaming to and from Nutaq FMC daughter cards.

7.2.6 Known issues

- ✓ The CLI command ram_put is not functional in the Radio420 PCI Express Record/Playback example. It is otherwise functional is all other examples, in either PCI Express and Gigabit Ethernet.

7.3 Record/Playback Module

7.3.1 BSDK Windows

Update

- ✓ Corrected FPGA core to remove the chances of timing errors during FPGA compiling.

7.3.2 BSDK Linux

This feature was not changed in this release.

7.3.3 MBDK Linux

This feature was not changed in this release.

7.3.4 Documentation

This feature was not changed in this release.

7.4 Radio420

7.4.1 BSP

This feature was not changed in this release.

7.4.2 BSDK Windows

This feature was not changed in this release.

7.4.3 BSDK Linux

This feature was not changed in this release.

7.4.4 MBDK

This feature was not changed in this release.

7.4.5 Documentation

This feature was not changed in this release.

7.4.6 Known Issues

- ✓ RX and TX at same frequencies: When configuring the RX and TX carrier frequencies at the same value, a jittery TX PLL configuration can occur. The PLL configuration functions returns a success but the carrier clock still shows jitter. This problem can occur at any RF frequency (300 MHz to 3 GHz), but occurs more in the high band (1500 MHz to 3 GHz).
  Reprogramming the Radio420 will solve the problem.

- ✓ Acquisition frequency configuration on the top Radio: In MIMO configuration, a top Radio DAC desynchronization can occur. The DAC data is not latched at the proper moment in the RF chip which leads to data corruption on the transmitter.
  The problem can occur at all DAC frequencies. It has been observed on 1/50 of PLL configurations using a 6-inch MMCX-MMCX cable between the bottom Radio420 Rout connector and the top Radio420 Rin connector.
  Use the shortest possible cable between Rout and Rin connectors.
  Reprogramming the Radio420 will solve the problem.

7.5 ADAC250

7.5.1 BSP

This feature was not changed in this release.

7.5.2 BSDK Windows

This feature was not changed in this release.

7.5.3 BSDK Linux

This feature was not changed in this release.

7.5.4 MBDK

This feature was not changed in this release.

7.5.5 Documentation

This feature was not changed in this release.

7.5.6 Limitations

- ✓ The ADAC250 can be used from 50 MHz to 250 MHz. The ADAC250 BSDK and MBDK examples have to be modified to fully support the low frequencies (50 MHz to 150 MHz) The ADAC250 pcore parameters must be set for the required ADC and DAC frequencies. It is set by default to 250 MHz in the examples.

7.6 MI250

7.6.1 BSP

This feature was not changed in this release.

7.6.2 BSDK Windows

This feature was not changed in this release.

7.6.3 BSDK Linux

This feature was not changed in this release.

7.6.4 MBDK

This feature was not changed in this release.

7.6.5 Reference Design

This feature was not changed in this release.

7.6.6 Documentation

This feature was not changed in this release.

7.6.7 Limitations

- ✓ The MI250 can be used from 50 MHz to 250 MHz. The MI250 BSDK and MBDK examples have to be modified to fully support the low frequencies (50 MHz to 150 MHz) The MMCM parameters must be set for the required ADC frequency. It is set by default to 250 MHz in the examples.

7.7 MI125

7.7.1 BSP

This feature was not changed in this release.

7.7.2 BSDK Windows

This feature was not changed in this release.

7.7.3 BSDK Linux

This feature was not changed in this release.

7.7.4 MBDK

This feature was not changed in this release.

7.7.5 Documentation

This feature was not changed in this release.

7.7.6 Known Issues

- ✓ SX315 et LX550 calibration issue: the MI125 data calibration fails on SX315 and LX500 FPGAs.

7.7.7 Limitations

- ✓ When used in external clock mode, the clock must be between 67 MHz and 125 MHz.

7.8 LVDS-xIn-xOut

7.8.1 BSP

This feature was not changed in this release.

7.8.2 BSDK Windows

This feature was not changed in this release.

7.8.3 BSDK Linux

This feature was not changed in this release.

7.8.4 MBDK

This feature was not changed in this release.

7.8.5 Documentation

This feature was not changed in this release.

7.8.6 Limitations

- ✓ LVDS-xIn-xOut Sync mode supports transfers of up to 100 MHz only.

7.9 ADC5000

7.9.1 BSP

New

- ✓ Full BSP support has been added.

7.9.2 BSDK Windows

New

- ✓ Full BSDK support has been added on Windows

7.9.3 BSDK Linux

New

- ✓ Full BSDK support has been added on Linux

7.9.4 MBDK

Not yet supported

7.9.5 Documentation

New

- ✓ ADC5000 User's Guide.pdf
- ✓ Programmer's Reference Guide ADC5000.pdf
- ✓ Perseus_Examples_ADC5000.pdf

7.9.6 Limitations

7.10 2x10GE SFP+

7.10.1 BSP

This feature was not changed in this release.

7.10.2 Documentation

This feature was not changed in this release.

7.11 QSFP SFP+

7.11.1 BSP

This feature was not changed in this release.

7.11.2 Documentation

This feature was not changed in this release.

7.12 Unsupported Modules

The following modules are not supported by the release 6.3.0 of ADP Software Tools:

- ✓ USB-2-GPIO-32 adapted
- ✓ Radio421
- ✓

8 Release Notes for ADP 6.2.0

8.1 Perseus 601x General

8.1.1 BSDK Windows

New

- ✓ Added DDR3 Sodimm automatic size detection.
- ✓ Corrected PCIe mailbox utility.

Updated

- ✓ Record Playback and RTDEx examples simplified and modified to be exactly the same as MBDK example.

8.1.2 BSDK Linux

New

- ✓ Added DDR3 Sodimm automatic size detection.
- ✓ Corrected PCIe mailbox utility.
- ✓ Record Playback and RTDEx examples simplified and modified to be exactly the same as MBDK example.

8.1.3 MBDK

New

- ✓ Added DDR3 Sodimm automatic size detection.
- ✓ Added PCI Express support.
- ✓ Record Playback example simplified.

8.1.4 Documentation

New

- ✓ Upgrading to ADP 6.2.pdf
- ✓ mbdk_demo_perseus601x_rtdex_perseus_to_perseus_pcie.htm
- ✓ mbdk_demo_perseus601x_record_playback_pcie.htm
- ✓ mbdk_demo_perseus601x_rtdex_host_to_perseus_pcie.htm

Updated

- ✓ ADP_MicroTCA_Overview.htm
- ✓ Added Installing the PCI Express Drivers.pdf : Corrected Perseus drivers installation.
- ✓ Perseus User's Guide.pdf: Updated for version 6.2.

- ✓ Perseus MBDK Guide.pdf: Updated for version 6.2.
- ✓ Perseus firmware update.pdf : Added CCE update section.
- ✓ mbdk_fpga_rtdex.htm : Added PCIe support.
- ✓ mbdk_fpga_rtdex_config.htm : Added PCIe support.
- ✓ mbdk_fpga_perseus601x_board_config.htm : Added PCIe support.
- ✓ Perseus_Examples_Record_Playback.pdf: Updated for new examples.
- ✓ Perseus_Examples_RTDEx.pdf: Updated for new examples.

8.2 RTDEx Module

8.2.1 BSDK Windows

Updated

- ✓ Modified RTDEx example from 7 to 2 channels and to match exactly the RTDEx MBDK example.

8.2.2 BSDK Linux

Updated

- ✓ Modified RTDEx example from 7 to 2 channels and to match exactly the RTDEx MBDK example.

8.2.3 MBDK

New

- ✓ Added RTDEx PCIe support.
- ✓ Added RTDEx PCIe model.

Updated

- ✓ Modified RTDEx example from 7 to 2 channels.

8.2.4 Documentation

New

- ✓ Added RTDEx MBDK html example documentation.

Updated

- ✓ Updated the Installing PCI Express Drivers document.
- ✓ Updated RTDEx Examples document for Perseus with modified example.
- ✓ Updated RTDEx MBDK html block documentation.

8.2.5 Limitations

- ✓ A Perseus can only have one RTDEx destination and source MAC address, meaning all 16 channels (8 RX an 8 TX channels) must communicate with the same peer.

- ✓ The Host Simulink blockset throughput is < 1MB/second full duplex. It is therefore not suitable for acquisition or transmission data streaming to and from Nutaq FMC daughter cards.

8.3 Record/Playback Module

8.3.1 BSDK Windows

New

- ✓ Added automatic detection of DDR3 SODIMM size.

8.3.2 BSDK Linux

New

- ✓ Added automatic detection of DDR3 SODIMM size.

8.3.3 MBDK Linux

New

- ✓ Added automatic detection of DDR3 SODIMM size.

8.3.4 Documentation

Updated

- ✓ Updated Record/Playback Programmer's Reference Guide
- ✓ Updated Record/Playback Examples document for Perseus

8.3.5 Known issues

- ✓ The Record/Playback FPGA core can cause timing errors when building large designs. Contact the Nutaq Technical Support if this issue appears in your design.

8.4 Radio420

8.4.1 BSP

Updated

- ✓ Added clock enable and disable functions to protect the FPGA design from unstable clocks during the Radio420 PLL configuration.
- ✓ Modified the example to use the clock enable / disable functions.
- ✓ Modified the LMS6002 default register values to correct the common-mode problems on some Radio420x cards.

8.4.2 BSDK Windows

This feature was not changed in this release.

8.4.3 BSDK Linux

This feature was not changed in this release.

8.4.4 MBDK

This feature was not changed in this release.

8.4.5 Documentation

This feature was not changed in this release.

8.4.6 Known Issues

- ✓ RX and TX at same frequencies: When configuring the RX and TX carrier frequencies at the same value, a jittery TX PLL configuration can occur. The PLL configuration functions returns a success but the carrier clock still shows jitter. This problem can occur at any RF frequency (300 MHz to 3 GHz), but occurs more in the high band (1500 MHz to 3 GHz).
  Reprogramming the Radio420 will solve the problem.

- ✓ Acquisition frequency configuration on the top Radio: In MIMO configuration, a top Radio DAC desynchronization can occur. The DAC data is not latched at the proper moment in the RF chip which leads to data corruption on the transmitter.
  The problem can occur at all DAC frequencies. It has been observed on 1/50 of PLL configurations using a 6-inch MMCX-MMCX cable between the bottom Radio420 Rout connector and the top Radio420 Rin connector.
  Use the shortest possible cable between Rout and Rin connectors.
  Reprogramming the Radio420 will solve the problem.

8.5 ADAC250

8.5.1 BSP

This feature was not changed in this release.

8.5.2 BSDK Windows

This feature was not changed in this release.

8.5.3 BSDK Linux

This feature was not changed in this release.

8.5.4 MBDK

This feature was not changed in this release.

8.5.5 Documentation

This feature was not changed in this release.

8.5.6 Limitations

- ✓ The ADAC250 can be used from 50 MHz to 250 MHz. The ADAC250 BSDK and MBDK examples have to be modified to fully support the low frequencies (50 MHz to 150 MHz) The ADAC250 pcore parameters must be set for the required ADC and DAC frequencies. It is set by default to 250 MHz in the examples.

8.6 MI250

8.6.1 BSP

This feature was not changed in this release.

8.6.2 BSDK Windows

This feature was not changed in this release.

8.6.3 BSDK Linux

This feature was not changed in this release.

8.6.4 MBDK

This feature was not changed in this release.

8.6.5 Reference Design

New

- ✓ Added ML605 Reference Design for ML605

8.6.6 Documentation

This feature was not changed in this release.

8.6.7 Limitations

- ✓ The MI250 can be used from 50 MHz to 250 MHz. The MI250 BSDK and MBDK examples have to be modified to fully support the low frequencies (50 MHz to 150 MHz) The MMCM parameters must be set for the required ADC frequency. It is set by default to 250 MHz in the examples.

8.7 MI125

8.7.1 BSP

This feature was not changed in this release.

8.7.2 BSDK Windows

This feature was not changed in this release.

8.7.3 BSDK Linux

This feature was not changed in this release.

8.7.4 MBDK

This feature was not changed in this release.

8.7.5 Documentation

This feature was not changed in this release.

8.7.6 Known Issues

- ✓ SX315 et LX550 calibration issue: the MI125 data calibration fails on SX315 and LX500 FPGAs.

8.7.7 Limitations

- ✓ When used in external clock mode, the clock must be between 67 MHz and 125 MHz.

8.8 LVDS-xIn-xOut

8.8.1 BSP

This feature was not changed in this release.

8.8.2 BSDK Windows

This feature was not changed in this release.

8.8.3 BSDK Linux

This feature was not changed in this release.

8.8.4 MBDK

This feature was not changed in this release.

8.8.5 Documentation

This feature was not changed in this release.

8.8.6 Limitations

- ✓ LVDS-xIn-xOut Sync mode supports transfers of up to 100 MHz only.

8.9 2x10GE SFP+

8.9.1 BSP

Updated

- ✓ Updated 2x10GE SFP+ FPGA core for AXI bus
- ✓ Updated 2x10GE SFP+ BSP example for AXI bus

8.9.2 Documentation

New

- ✓ Added 2x10GE SFP+ User's Guide
- ✓ Added 2x10GE SFP+ Examples document for Perseus

8.10 QSFP SFP+

8.10.1 BSP

Updated

- ✓ Updated QSFP SFP+ FPGA core for AXI bus
- ✓ Updated QSFP SFP+ BSP example for AXI bus

8.10.2 Documentation

New

- ✓ Added QSFP SFP+ User's Guide
- ✓ Added QSFP SFP+ Examples document for Perseus

8.11 Unsupported Modules

The following modules are not supported by the release 6.1.0 of ADP Software Tools:

- ✓ ADC5000
- ✓ USB-2-GPIO-32 adapted
- ✓ Radio421

9 Release Notes for ADP 6.1.0

9.1 Perseus 601x General

9.1.1 BSDK Windows

New

- ✓ Added Hard Drive Streaming applicative example
- ✓ Added 4 GB Sodimm support to the Record/Playback
- ✓ Added QSFP SFP+ and 2x10GE SFP+ FMC support for BSP only
- ✓ Added PCIe RTDEx support (FPGA compilation only)

9.1.2 BSDK Linux

New

- ✓ Added PCIe RTDEx support
- ✓ Added 4 GB Sodimm support to the Record/Playback

9.1.3 MBDK

New

- ✓ Added 4 GB Sodimm support to the Record/Playback

9.1.4 Documentation

New

- ✓ Added Installing the PCI Express Drivers.pdf
- ✓ Upgrading to ADP 6.1.pdf

Updated

- ✓ ADP_MicroTCA_Overview.htm

9.2 RTDEx Module

9.2.1 BSDK Linux

New

- ✓ Added RTDEx support through PCIe for µTCA embedded PC

9.2.2 Documentation

New

- ✓ Added the Installing PCI Express Drivers document

Updated

- ✓ Updated RTDEx Programmer's Reference Guide with PCIe
- ✓ Updated RTDEx Examples document for Perseus with PCIe

9.2.3 Know Issues

- ✓ Some functions names previously part of the RTDEx API supporting Ethernet have changed. Projects using these functions might have to be changed in order to build after updating to ADP Software Tools 6.1.0.
- ✓ The PCIe-based RTDEx with Record/Playback example sometimes issues a time constraint error during bitstream generation. A solution for this problem exists, please contact Nutaq support if you are working with this FPGA and encounter this problem. The integration of the solution is planned for release 6.2.0.

9.2.4 Limitations

- ✓ A Perseus can only have one RTDEx destination and source MAC address, meaning all 16 channels (8 RX an 8 TX channels) must communicate with the same peer.
- ✓ The Host Simulink blockset throughput is < 1MB/second full duplex. It is therefore not suitable for acquisition or transmission data streaming to and from Nutaq FMC daughter cards.

9.3 Record/Playback Module

9.3.1 BSDK Windows

New

- ✓ Added support of 4GB DDR3 SODIMM

9.3.2 BSDK Linux

New

- ✓ Added support of 4GB DDR3 SODIMM

9.3.3 MBDK Linux

New

- ✓ Added support of 4GB DDR3 SODIMM

9.3.4 Documentation

Updated

- ✓ Updated Record/Playback Programmer's Reference Guide
- ✓ Updated Record/Playback Examples document for Perseus

9.4 Radio420

9.4.1 BSP

This feature was not changed in this release.

9.4.2 BSDK Windows

This feature was not changed in this release.

9.4.3 BSDK Linux

This feature was not changed in this release.

9.4.4 MBDK

This feature was not changed in this release.

9.4.5 Documentation

This feature was not changed in this release.

9.4.6 Known Issues

- ✓ RX and TX at same frequencies: When configuring the RX and TX carrier frequencies at the same value, a jittery TX PLL configuration can occur. The PLL configuration functions returns a success but the carrier clock still shows jitter. This problem can occur at any RF frequency (300 MHz to 3 GHz), but occurs more in the high band (1500 MHz to 3 GHz).
  Reprogramming the Radio420 will solve the problem.

- ✓ Acquisition frequency configuration on the top Radio: In MIMO configuration, a top Radio DAC desynchronization can occur. The DAC data is not latched at the proper moment in the RF chip which leads to data corruption on the transmitter.
  The problem can occur at all DAC frequencies. It has been observed on 1/50 of PLL configurations using a 6-inch MMCX-MMCX cable between the bottom Radio420 Rout connector and the top Radio420 Rin connector.
  Use the shortest possible cable between Rout and Rin connectors.

Reprogramming the Radio420 will solve the problem.

9.5 ADAC250

9.5.1 BSP

This feature was not changed in this release.

9.5.2 BSDK Windows

This feature was not changed in this release.

9.5.3 BSDK Linux

This feature was not changed in this release.

9.5.4 MBDK

This feature was not changed in this release.

9.5.5 Documentation

This feature was not changed in this release.

9.5.6 Limitations

- ✓ The ADAC250 can be used from 50 MHz to 250 MHz. The ADAC250 BSDK and MBDK examples have to be modified to fully support the low frequencies (50 MHz to 150 MHz) The ADAC250 pcore parameters must be set for the required ADC and DAC frequencies. It is set by default to 250 MHz in the examples.

9.6 MI250

9.6.1 BSP

This feature was not changed in this release.

9.6.2 BSDK Windows

This feature was not changed in this release.

9.6.3 BSDK Linux

This feature was not changed in this release.

9.7 MBDK

This feature was not changed in this release.

9.7.1 Reference Design

New

- ✓ Added ML605 Reference Design for ML605

9.7.2 Documentation

This feature was not changed in this release.

9.7.3 Limitations

- ✓ The MI250 can be used from 50 MHz to 250 MHz. The MI250 BSDK and MBDK examples have to be modified to fully support the low frequencies (50 MHz to 150 MHz) The MMCM parameters must be set for the required ADC frequency. It is set by default to 250 MHz in the examples.

9.8 MI125

9.8.1 BSP

This feature was not changed in this release.

9.8.2 BSDK Windows

This feature was not changed in this release.

9.8.3 BSDK Linux

This feature was not changed in this release.

9.8.4 MBDK

This feature was not changed in this release.

9.8.5 Documentation

This feature was not changed in this release.

9.8.6 Known Issues

- ✓ SX315 et LX550 calibration issue: the MI125 data calibration fails on SX315 and LX500 FPGAs.

9.8.7 Limitations

- ✓ When used in external clock mode, the clock must be between 67 MHz and 125 MHz.

9.9 LVDS-xIn-xOut

9.9.1 BSP

This feature was not changed in this release.

9.9.2 BSDK Windows

This feature was not changed in this release.

9.9.3 BSDK Linux

This feature was not changed in this release.

9.9.4 MBDK

This feature was not changed in this release.

9.9.5 Documentation

This feature was not changed in this release.

9.9.6 Limitations

- ✓ LVDS-xIn-xOut Sync mode supports transfers of up to 100 MHz only.

9.10 2x10GE SFP+

9.11 BSP

Updated

- ✓ Updated 2x10GE SFP+ FPGA core for AXI bus
- ✓ Updated 2x10GE SFP+ BSP example for AXI bus

9.12 Documentation

New

- ✓ Added 2x10GE SFP+ User's Guide
- ✓ Added 2x10GE SFP+ Examples document for Perseus

9.13 QSFP SFP+

9.13.1 BSP

Updated

- ✓ Updated QSFP SFP+ FPGA core for AXI bus
- ✓ Updated QSFP SFP+ BSP example for AXI bus

9.13.2 Documentation

New

- ✓ Added QSFP SFP+ User's Guide
- ✓ Added QSFP SFP+ Examples document for Perseus

9.14 Unsupported Modules

The following modules are not supported by the release 6.1.0 of ADP Software Tools:

- ✓ ADC5000
- ✓ USB-2-GPIO-32 adapted
- ✓ Radio421

10 Release Notes for ADP 6.0.0

10.1 Perseus 601x General

10.1.1 BSDK Windows

New

- ✓ Added permanent static IP address setup
- ✓ Added RTDEx streaming support
- ✓ Added Radio420 streaming support
- ✓ Added MI250 EAPI and CCE support
- ✓ Added complete MI125 support
- ✓ Added complete LVDS-xIn-xOut support
- ✓ Added VITA 57.1 FMC detection and identification

Updated

- ✓ Updated default system for AXI bus
- ✓ Updated RTDEx module for AXI bus
- ✓ Updated Record/Playback module for AXI bus
- ✓ Updated Radio420 module for AXI bus
- ✓ Updated MI250 module for AXI bus
- ✓ Updated ADAC250 module for AXI bus

10.1.2 BSDK Linux

New

- ✓ Added permanent static IP address setup
- ✓ Added RTDEx streaming support
- ✓ Added Radio420 streaming support
- ✓ Added GNU Radio support
- ✓ Added MI250 EAPI support
- ✓ Added complete MI125 support
- ✓ Added complete LVDS-xIn-xOut support

Updated

- ✓ Updated Default system for AXI bus
- ✓ Updated RTDEx module for AXI bus
- ✓ Updated Record/Playback module for AXI bus
- ✓ Updated Radio420 module for AXI bus
- ✓ Updated MI250 module for AXI bus
- ✓ Updated ADAC250 module for AXI bus

10.1.3 MBDK

New

- ✓ Added MI250 FPGA blockset and models
- ✓ Added MI125 FPGA blockset and models
- ✓ Added LVDS-xIn-xOut FPGA blockset and models

Updated

- ✓ Updated RTDEx FPGA blockset and models for AXI bus
- ✓ Updated Record/Playback FPGA blockset and models for AXI bus
- ✓ Updated Radio420 FPGA blockset and models for AXI bus
- ✓ Updated ADAC250 FPGA blockset and models for AXI bus

10.1.4 Documentation

New

- ✓ Added MI125 User's Guide
- ✓ Added LVDS-xIn-xOut User's Guide
- ✓ Added RTDEx Programmer's Reference Guide
- ✓ Added Record/Playback Programmer's Reference Guide
- ✓ Added Radio420 Programmer's Reference Guide
- ✓ Added MI250 Programmer's Reference Guide
- ✓ Added MI125 Programmer's Reference Guide
- ✓ Added LVDS-xIn-xOut Programmer's Reference Guide
- ✓ Added RTDEx Examples document for Perseus
- ✓ Added Record/Playback Examples document for Perseus
- ✓ Added Radio420 Examples document for Perseus
- ✓ Added MI250 Examples document for Perseus
- ✓ Added MI125 Examples document for Perseus
- ✓ Added LVDS-xIn-xOut Examples document for Perseus
- ✓ Added Perseus IP address setup guide
- ✓ Added Linux Firmware update guide

Updated

- ✓ Updated ADAC250 User's Guide
- ✓ Updated Radio420 User's Guide
- ✓ Updated MI250 User's Guide
- ✓ Updated Perseus User's Guide, without the example sections which were put in separate documents.

10.2 RTDEx Module

10.2.1 BSDK Windows

New

- ✓ Supported streaming functionalities
- ✓ Supported Perseus-to-Perseus transfers
- ✓ Added statistics registers
- ✓ Added flow control support

- ✓ Added Perseus-to-Perseus examples

Updated

- ✓ Updated RTDEx module for AXI bus
- ✓ Updated API with user friendly functions
- ✓ Updated CLI to correct hanging problems when a packet was missed.

10.2.2 BSDK Linux

New

- ✓ Supported streaming functionalities
- ✓ Supported Perseus-to-Perseus transfers
- ✓ Added statistics registers
- ✓ Added flow control support

Updated

- ✓ Updated RTDEx module for AXI bus
- ✓ Updated API with user friendly functions
- ✓ Updated CLI to correct hanging problems when a packet was missed.

10.2.3 MBDK

New

- ✓ Supported all new BSDK functionalities
- ✓ Added RTDEx host Simulink blockset

Updated

- ✓ Updated RTDEx FPGA blockset and models for AXI bus

10.2.4 Documentation

New

- ✓ Added RTDEx Programmer's Reference Guide
- ✓ Added RTDEx Examples document for Perseus

10.2.5 Limitations

- ✓ A Perseus can only have one RTDEx destination and source MAC address, meaning all 16 channels (8 RX an 8 TX channels) must communicate with the same peer.
- ✓ The Host Simulink blockset throughput is < 1MB/second full duplex. It is therefore not suitable for acquisition or transmission data streaming to and from Nutaq FMC daughter cards.

10.3 Record/Playback Module

10.3.1 BSDK Windows

Updated

- ✓ Updated Record/Playback module for AXI bus
- ✓ Corrected trigger address calculation in FPGA core
- ✓ Corrected trigger address retrieval in API
- ✓ Added trigger address retrieval to CLI functions
- ✓ Added CLI function recplay_record_check_transfer_done
- ✓ Updated Record/Playback example

10.3.2 BSDK Linux

Updated

- ✓ Updated Record/Playback module for AXI bus
- ✓ Corrected trigger address calculation in FPGA core
- ✓ Corrected trigger address retrieval in API
- ✓ Added trigger address retrieval to CLI functions
- ✓ Added CLI function recplay_record_check_transfer_done
- ✓ Updated Record/Playback example

10.3.3 MBDK

Updated

- ✓ Updated Record/Playback blockset for AXI bus
- ✓ Supports all BSDK functionalities
- ✓ Updated Record/Playback model

10.3.4 Documentation

New

- ✓ Added Record/Playback Programmer's Reference Guide
- ✓ Added Record/Playback Examples document for Perseus

10.4 Radio420

10.4.1 BSP

Updated

- ✓ Updated Radio420 FPGA core for AXI bus
- ✓ Updated Radio420 BSP example for AXI bus and MIMO support
- ✓ Updated RF calibration functions

10.4.2 BSDK Windows

New

- ✓ Added streaming support for SISO and MIMO
- ✓ Added Radio420 streaming example (SISO and MIMO)

Updated

- ✓ Updated Radio420 Record/Playback example for MIMO support and AXI bus

10.4.3 BSDK Linux

New

- ✓ Added Streaming support for SISO and MIMO
- ✓ Added Radio420 streaming example (SISO and MIMO)
- ✓ Added Gnu Radio support
- ✓ Added Radio420x Host Simulink blockset

Updated

- ✓ Updated Radio420x blockset for AXI bus
- ✓ Updated Radio420 Record/Playback example for MIMO support and AXI bus

10.4.4 MBDK

New

- ✓ Added streaming support
- ✓ Added Radio420 streaming model (SISO and MIMO)
- ✓ Added QAM-64 OFDM model

Updated

- ✓ Updated Radio420 blockset for AXI bus
- ✓ Updated Radio420 Record/Playback model for MIMO support and AXI bus

10.4.5 Reference Design

New

- ✓ Added Zedboard Reference Design for Radio420
- ✓ Added ML605 Reference Design for Radio420

10.4.6 Documentation

New

- ✓ Added Radio420 Programmer's Reference Guide
- ✓ Added Radio420 Examples document for Perseus

Updated

- ✓ Added Radio420 User's Guide

10.4.7 Known Issues

- ✓ RX and TX at same frequencies: When configuring the RX and TX carrier frequencies at the same value, a jittery TX PLL configuration can occur. The PLL configuration functions returns a success but the carrier clock still shows jitter. This problem can occur at any RF frequency (300 MHz to 3 GHz), but occurs more in the high band (1500 MHz to 3 GHz).
  Reprogramming the Radio420 will solve the problem.

- ✓ Acquisition frequency configuration on the top Radio: In MIMO configuration, a top Radio DAC desynchronization can occur. The DAC data is not latched at the proper moment in the RF chip which leads to data corruption on the transmitter.
  The problem can occur at all DAC frequencies. It has been observed on 1/50 of PLL configurations using a 6-inch MMCX-MMCX cable between the bottom Radio420 Rout connector and the top Radio420 Rin connector.
  Use the shortest possible cable between Rout and Rin connectors.
  Reprogramming the Radio420 will solve the problem.

10.5 ADAC250

10.5.1 BSP

Updated

- ✓ Modifed ADC and DAC calibration algorithm for a more robust approach. Allows use from 50 MHz to 250 MHz.
- ✓ Added PLL initialization function for easier PLL configuration
- ✓ Updated ADAC250 FPGA core for AXI Bus
- ✓ Updated ADAC250 BSP example

10.5.2 BSDK Windows

Updated

- ✓ ADAC250 EAPI and CCE support for new functions
- ✓ Updated ADAC250 Record/Playback example for AXI Bus

10.5.3 BSDK Linux

Updated

- ✓ ADAC250 EAPI and CCE support for new functions
- ✓ Updated ADAC250 Record/Playback example for AXI bus

10.5.4 MBDK

Updated

- ✓ Updated ADAC250 FPGA blockset for AXI bus
- ✓ Updated ADAC250 Record/Playback model for AXI bus

10.5.5 Documentation

New

- ✓ Added ADAC250 Programmer's Reference Guide
- ✓ Added ADAC250 Examples document for Perseus

Updated

- ✓ Updated ADAC250 User's Guide

10.5.6 Limitations

- ✓ The ADAC250 can be used from 50 MHz to 250 MHz. The ADAC250 BSDK and MBDK examples have to be modified to fully support the low frequencies (50 MHz to 150 MHz) The ADAC250 pcore parameters must be set for the required ADC and DAC frequencies. It is set by default to 250 MHz in the examples.

10.6 MI250

10.6.1 BSP

Updated

- ✓ Modifed ADC calibration algorithm for a more robust approach. Allows ADC use from 50 MHz to 250 MHz.
- ✓ Added PLL initialization function for easier PLL configuration
- ✓ Updated MI250 FPGA core for AXI Bus
- ✓ Updated MI250 BSP example

10.6.2 BSDK Windows

New

- ✓ Added complete EAPI and CCE support
- ✓ Added MI250 Record example

10.6.3 BSDK Linux

New

- ✓ Added complete EAPI and CCE support
- ✓ Added MI250 Record example

10.6.4 MBDK

New

- ✓ Added complete EAPI and CCE support
- ✓ Added MI250 FPGA blockset
- ✓ Added MI250 Record model

10.6.5 Documentation

New

- ✓ Added MI250 Programmer's Reference Guide
- ✓ Added MI250 Examples document for Perseus

Updated

- ✓ Updated MI250 User's Guide

10.6.6 Limitations

- ✓ The MI250 can be used from 50 MHz to 250 MHz. The MI250 BSDK and MBDK examples have to be modified to fully support the low frequencies (50 MHz to 150 MHz) The MMCM parameters must be set for the required ADC frequency. It is set by default to 250 MHz in the examples.

10.7 MI125

10.7.1 BSP

New

- ✓ Added MI125 stand-alone library
- ✓ Added MI125 FPGA core
- ✓ Added MI125 BSP example

10.7.2 BSDK Windows

New

- ✓ Added complete MI125 EAPI and CCE support
- ✓ Added MI125 Record example

10.7.3 BSDK Linux

New

- ✓ Added complete MI125 EAPI and CCE support
- ✓ Added MI125 Record example

10.7.4 MBDK

New

- ✓ Added MI125 FPGA blockset
- ✓ Added MI125 Record model

10.7.5 Documentation

New

- ✓ Added MI125 Programmer's Reference Guide
- ✓ Added MI125 Examples document for Perseus
- ✓ Added MI125 User's Guide

10.7.6 Known Issues

- ✓ SX315 et LX550 calibration issue: the MI125 data calibration fails on SX315 and LX500 FPGAs.

10.7.7 Limitations

- ✓ When used in external clock mode, the clock must be between 67 MHz and 125 MHz.

10.8 LVDS-xIn-xOut

10.8.1 BSP

New

- ✓ Added LVDS-xIn-xOut stand-alone library
- ✓ Added LVDS-xIn-xOut FPGA core for GPIO mode
- ✓ Added LVDS-xIn-xOut FPGA core for Sync mode
- ✓ Added LVDS-xIn-xOut BSP example for GPIO mode
- ✓ Added LVDS-xIn-xOut BSP example for Sync mode

10.8.2 BSDK Windows

New

- ✓ Added complete LVDS-xIn-xOut EAPI and CCE support
- ✓ Added LVDS-xIn-xOut loopback for GPIO mode
- ✓ Added LVDS-xIn-xOut loopback for Sync mode

10.8.3 BSDK Linux

New

- ✓ Added complete LVDS-xIn-xOut EAPI and CCE support
- ✓ Added LVDS-xIn-xOut loopback for GPIO mode
- ✓ Added LVDS-xIn-xOut loopback for Sync mode

10.8.4 MBDK

New

- ✓ Added LVDS-xIn-xOut FPGA blockset
- ✓ Added LVDS-xIn-xOut loopback model for GPIO mode

- ✓ Added LVDS-xIn-xOut loopback model for Sync mode

10.8.5 Documentation

New

- ✓ Added LVDS-xIn-xOut Programmer's Reference Guide
- ✓ Added LVDS-xIn-xOut Examples document for Perseus
- ✓ Added LVDS-xIn-xOut User's Guide

10.8.6 Limitations

- ✓ LVDS-xIn-xOut Sync mode supports transfers of up to 100 MHz only.

10.9 Unsupported Modules

The following modules are not supported by the release 6.0.0 of ADP Software Tools:

- ✓ ADC5000
- ✓ SFP+
- ✓ QSFP+
- ✓ USB-2-GPIO-32 adapted
- ✓ Radio421