These notes describe changes and issues
associated with the specified releases
of the MBARI PUCK Reference Design Kit (PRDK).

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 PRDK Release Notes
 release: feb08_2008
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Features
- added help and quit commands to emulator instrument mode
- added support for higher baud rates to emulator for faster performance with utilties

Bug Fixes
A number of bug fixes were made, mostly related to improving performance of the
buffering and I/O
routines to speed up the utilities.

- in DataSheetWriter: fixed duplicate write statement that caused mfgModel to be written twice and mfgVersion
  not to be written.

- Payload.InputStream.read(): fixed buffering and end-of-stream detection; in reference design hardware,
  memory reads wrap around, making it possible to re-read the same memory twice, which is innefficient
  and slow. Also added calls to puck.setFastBaud() in utilties to speed up transfers.

- in Puck.read: optimized wait loop for much faster performance; previously slept for 1 sec when no input
  was available, which happens frequently. Now checks every 50 ms or so (though still with a 20 s timeout).

- in unix/memory.c: fixed pointer arithmetic error that caused datasheet size to be written to the wrong
  location overwriting part of the mfg name. Reformatted memory output on puck start. Use memcpy instead
  looping through buffer in readPuckMemory.

- in unix/serial.c: added support for multiple baud rates. Added sendChars method that writes a whole
  buffer at once (10x improvement in write speed for emulator; called by funcReadMemCmd).

- in msp430/serial.c: added sendChars method (see above)

- in generic/actions.c: funcReadMemCmd calls sendChars() instead of sendChar() (see above)

- fixed makefile for unix firmware build; redefined objects

Known Issues
- Power cycle timing with reference design hardware (rev 6)
  When power to the PUCK reference hardware is cycled rapidly, the supply voltage can take a long time (10-15 s)
  to drop below the threshold required to initiate a power-on reset (POR) condition. If POR does not occur, the
  PUCK will not boot properly, usually evidenced by low current draw (< ~4 mA); the PUCK will not respond in
  this state. A potential work-around is to close and open the reset jumper (with power on or off).

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 PRDK Release Notes
 release: jan16_2008
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This version will be the initial PRDK release on the MBARI Plug and Work web site.

Features
- Updated hardware test procedure document
- Added Ant target ("firmware") to buildPRDK to build MSP430 binaries for PRDK build, along with wrapper script buildFirmware.

Bug Fixes
- Fixed build problem in bashrc for *nix (incorrect path separator caused shell to try to execute log4j JAR file)
- Under MacOS (BSD Linux?), puckVerify won't compile because termios.h doesn't define CBAUD; redefine in puckVerify-1.3/tty.h

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 PRDK Release Notes
 release: jan13_2008
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Features
- Updated PUCK schematic annotations and cable drawings
- RS485 transceiver test code (see issue below)
- Added Win32 wrapper scripts for PUCK utilities
- Added hardware test guide for running hardware tests under
  minimal Win32 installation (for internal production)

Issue: RS485 hardware support for PUCK v1.3 incomplete
Affects: PUCK reference design implementation hardware

The modification made to the reference implementation hardware for PUCK protocol v1.3 does not work for the RS485 version. Only one of the puck's two communications lines required for RS485 communication is connected in instrument mode; hence the PUCK is unable to send or receive data to/from the host computer in instrument mode. It is possible to connect this line with the following "blue-wire" modification:

        Connect pins 2 and 4 of relay K1

Furthermore, an RS485 firmware implementation for PUCK protocol v1.3 is not currently defined. Pending issues include an addressing scheme and electrical termination and biasing recommendations.

However, when the RS485 tranceiver is installed and the blue-wire modification above is made, it is possible to exercise the RS485 transceiver using test code included in serial.c for the MSP430 firmware. The makefile for the MSP430 firmware contains notes describing how to compile the test code.

There is currently no plan to complete a RS485 reference implementation.

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 PRDK Release Notes
 release: nov30_2007
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Features
- Added documentation for installing the MSPGCC tool chain for
- Updated MSP430 reference design firmware so that it now compiles using either
  MSPGCC or Quadravox AQ430.
- MSP430 binaries (.rcx, .elf) using the new MSP430
  firmware code (nov30_2007 tag) are included in the distribution.
- Hardware has been built and tested using the hardware documentation

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 PRDK Release Notes
 release: nov09_2007
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Features
Updated design documentation has been provided for the PUCK hardware reference design.
Consult the README file in the hardware directory to learn how this documentation is organized.

Version information for various PRDK components is now generated during the build process.
This may be found in the top level PRDK directory in the version-info file.

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 PRDK Release Notes
 release: oct29_2007
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Issue: Vulnerability in writePuck and writeDatasheet
Affects: PUCK reference design implementation hardware
and PUCK-enabled devices with writable
datasheets

It is possible that the information in the datasheet
will be lost if the user terminates (ctrl-c) the
writePuck or writeDatasheet utilities. It appears
that the existing shutdown hooks (intended to preserve
the datasheet) are not allowed to complete before the JVM is halted.

If this happens, the datasheet in the PUCK hardware will
possibly have been erased if the program was terminated before
all write operations were completed. The datasheet may be
restored using the writeDatasheet utility.

If you are using the PUCK reference implementation hardware,
a copy of the original datasheet is included with the
hardware. The datasheet properties template included in the
prdk/doc/samples directory may alternatively be used to
create a new file that may by used with writePuck.