[SCE CONFIDENTIAL DOCUMENT]
PLAYSTATION(R)3 Programmer Tool Runtime Library 110.006

The following are known bugs, limitations and cautions on
the Reference Tool SDK package.

New updates have the release version of this package.

Reference Tool

- A problem has been found that when a program that outputs voice
  from RSX(TM) is activated, and then one of the following is
  performed, voice is not output.
  - Plug-in/out the HDMI cable
  - Switch the TV monitor power from Off to On (including the AV Amp)
  - Switch between the TV monitor channels and set the HDMI input again
    (including the AV Amp)

- The following devices are not supported now.

  - CompactFlash(R)
  - SD Memory Card
  - FOOT SW

  The wireless feature (Bluetooth(R)/Wireless LAN) can only be used
  on Reference Tools DEH-R1040 and later, which have the necessary
  authorization tools.
  The antenna for the wireless feature is bundled with DEH-1040 and
  later Reference Tools. Do not attempt to connect DEH-R1030 and
  earlier Reference Tools.

- For specifications regarding the Reference Tool, please refer to
  info/PS3-FAQ_*.pdf.

- Currently, the status does not change even if the DRIVE SELECT
  switch of the front panel is pressed.

  However, by resetting (or rebooting) the Reference Tool after
  switching between "BD emulator (HDD)" and "BD drive" in
  "Blu-ray Disc access" of "Boot parameters" on the Administration
  Tool, it is possible to switch the LED to be illuminated on
  the front panel ("HDD drive LED" or "Blu-ray Disc drive LED").

CBE Specifications

- Currently, the CBE that is equipped with each tool version can use
  six SPUs.

System Software

(Added in Release 110.006)
- Since a change has been made so that a process termination wait occurs
  when the power off processing is performed in the case of when booted
  from the debugger, with some of the samples that do not support
  the termination processing of game applications, a timeout occurs
  and the system is forcibly terminated with a warning sound when
  the power off processing is performed in the case of when booted from
  the debugger.

System Utilities

<Web Browser Utility>
- Files cannot be downloaded with the downloader.

(Added in Release 110.006)
- When an image is decoded using the heap area for contents close to
  the upper limit, it may hang up.

(Added in Release 110.006)
- The handler onMouseOver/onMouseOut of JavaScript does not work
  properly. Use onFocus/onBlur instead.

(Added in Release 110.006)
- The performance may be slow when using ClickableMap.

BD Emulator (HDD)

- When using the BD emulator on Windows, dtcfsutil.exe does not operate on the msys. Please use dtcfsutil.exe on the command prompt.
  There is no problem when using the BD emulator on Linux.

File System

<CFS>
- The error code returned by the following interfaces is CELL_FS_EACCES, not CELL_FS_EPERM.
  cellFsRename(), cellFsUnlink(), cellFsMkdir(), cellFsRmdir()

Cell OS Lv-2

- If you try to create upper limit or more memory containers with sys_memory_container_create(), an ID that is the same as that of the memory container that has already been allocated is returned for a new memory container. When this occurs, the older memory container may not be destroyed with sys_memory_container_destroy() and may not be retrieved by the system even at the time of game process termination.

  [Workaround]
  Please make sure that the number of memory containers to be created with a game process at the same time is less than 10.

CODEC

<libvdec>
- It is assumed that the outputs of the samples are output to a PC monitor with a resolution of SXGA or more or to an HDMI monitor that supports 1280x720/60p input. Therefore, if the monitor setting is not performed appropriately in advance with the setmonitor utility, the samples will display an error message and will be aborted.

(Added in Release 110.006)
- A problem occurs when calling cellVdecClose() (only with MPEG-2 video).
  Details:
  If cellVdecClose() is called just after calling cellVdecDecodeAu(), cellVdecStartSeq(), or cellVdecEndSeq(), the call may stop in cellVdecClose() and may not return in some rare cases.
  In order to avoid this problem, please call cellVdecEndSeq() before calling cellVdecClose() so that the SEQDONE callback is received for sure before calling cellVdecClose().

(Added in Release 110.006)
- There is a problem with the value of cmdDepth that is obtained with cellVdecQueryAttr() (only with AVC CODEC).
  Details:
  The value of the member cmdDepth (CellVdecAttr type variable) that is the second argument of cellVdecQueryAttr() is always set to be +1 (only with AVC CODEC).
  With this problem, the value is always 5. However, it should be always 4.
  In order to avoid this problem, in case of AVC, please always handle cmdDepth as -1, or check the value that is returned from cellVdecDecodeAu() and perform an implementation with which the error CELL_VDEC_ERROR_BUSY can be supported.

<libdmux>
- When calling cellDmuxDisableEs(), please make sure that the video/audio decoder is not decoding the applicable ES (Elementary Stream) before calling.
  Specifically, it is recommended to call cellDmuxDisableEs() after CELL_VDEC_MSG_TYPE_AUDONE/CELL_ADEC_MSG_TYPE_AUDONE for the AU input to the video/audio decoder is received or after cellVdecClose()/cellAdecClose() is called.

(Added in Release 110.006)
- The message CELL_DMUX_MSG_TYPE_DEMUX_DONE may not be sent when demuxer is closed in the following sequence:
  1. demuxer is running with the presence of valid ESs
  2. Disable all the valid ES Handles by cellDmuxDisableEs()
  3. Wait for CELL_DMUX_MSG_TYPE_DEMUX_DONE message(stop the

     self-running state)
  4. Close demuxer by calling cellDmuxClose()
  * Note that this problem also occurs in a sequence where
    cellDmuxResetStream() is called before and after step 2.
  To avoid this problem, do not wait for CELL_DMUX_MSG_TYPE_DEMUX_DONE
  message(stop the self-running state) in step 3.

<libvpost>
- It is assumed that the outputs of the samples are output to
  a PC monitor with a resolution of SXGA or more or to an HDMI monitor
  that supports 1280x720/60p input. Therefore, if the monitor setting
  is not performed appropriately in advance with the setmonitor utility,
  the samples will display an error message and will be aborted.

<libjpgdec>
- It is assumed that the outputs of the samples are output to
  a PC monitor with a resolution of SXGA or more or to an HDMI monitor
  that supports 1280x720/60p input. Therefore, if the monitor setting
  is not performed appropriately in advance with the setmonitor utility,
  the samples will display an error message and will be aborted.

<libpngdec>
- It is assumed that the outputs of the samples are output to
  a PC monitor with a resolution of SXGA or more or to an HDMI monitor
  that supports 1280x720/60p input. Therefore, if the monitor setting
  is not performed appropriately in advance with the setmonitor utility,
  the samples will display an error message and will be aborted.

- Even if the information of sCAL chunk exists in the stream,
  the bit supported by dataOutInfo->chunkInformation is not validated.

<libadec>
- SPURS stops with an exceptional event when usign ATRAC3plus decoder.

  Details:
  SPURS may stop with an exceptional event when ATRAC3plus decoder is in use.
  This problem may occur when either one of the following conditions is met:

  - libsail is used to play ATRAC3plus data that is created by Stream Composer.
  - libadec is used to decode the same data as above directly.

  Note that this problem does not occur when you use libatrac3plus to play
  data created by at3tool.

  Workaround
  Do not include ATRAC3plus data in PAMF file.

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libfont

- With the following functions, hangul characters cannot be rendered
  to the correct base line position.
  When using hangul characters, please do not use them.

  Functions for getting outline glyph
  cellFontGenerateCharGlyph()
  cellFontGenerateCharGlyphVertical()

  Functions for rendering from outline glyph
  cellFontGlyphRenderImage()
  cellFontGlyphRenderImageHorizontal()
  cellFontGlyphRenderImageVertical()

  Functions for vertical rendering
  cellFontRenderCharGlyphImageVertical()

- The initial size of the rendering work buffer is allocated as
  the buffer initial size that is specified with the argument
  CellFontRendererConfig of cellFontCreateRenderer(), but when
  a rendering function if called, it is changed to the buffer size
  that becomes necessary at that time. Therefore, it is meaningless
  to specify the initial size.
  (With CellFontRendererConfig_setAllocateBuffer(&config,initSize,maxSize),
  it is not possible to control the memory allocation
  operation even when initSize == maxSize.)

Standard C/C++ Library

- If the following compile options are specified when compiling
  a program on the PPU side, many warnings may be output.

  -Wall -Wundef -Wundef -Wsystem-headers -Wcast-qual

- When compiling an SPU program that included math.h, an error occurs
  if -fsingle-precision-constant is specified as the compile option.

- When including the system header, include it outside extern "C" or
  extern "C++".

  For example, an error may occur if a program such as below is compiled:

```
  extern "C" {
    ...

    #include <yyyy> // NG : Including within extern "C".

    ...
  }
```

  The error can be avoided by rewriting the program as shown below:

```
  #include <yyyy>
  extern "C" {

    ...

  }
```

<PPU>
- There are following limitations on the usage of atexit function.

  * If a function in a PRX module is registered using atexit function,
    and if main function finishes or exit function is invoked after the
    PRX module is stopped, a DSI (data storage interrupt) will occur.

  * If atexit function is used in a C++ global constructor, the behavior
    is different from the C++ standard. All the registered functions are
    invoked prior to all the global destructors.

<PPU>
- If you use class ios_base or any of its derived classes (fstream,
  iostream, stringstream, strstream, etc.) in PRX, create their
  instances in ELF, and pass the pointers to them to PRX. If they are
  created in PRX, a DSI (data storage interrupt) may occur in function
  _Fac_tidy() at the termination of the PPU program.

<SPU>
- If rounding mode is set by function fesetround in fenv.h, there is a
  bug that the setting is effective in only the operations on slice 1 of
  vector double type. Round to nearest even mode (default) is used for
  the operations on double type and on slice 0 of vector double type.

  The problem can be worked around by using the following code instead
  of fesetround. Replace FE_TOWARDZERO with the mode to be set.

```
  vector unsigned int r=spu_mffpscr();
  r=spu_sel(r,spu_splats(((unsigned int)FE_TOWARDZERO*5)<<8),
            ((vector unsigned int){0x0000FF00,0,0,0}));
  spu_mtfpscr(r);
```

  See also technical notes "Rounding control of SPU
  double-precision floating-point operations".

<PPU/SPU>
- If programs that include header stdlib.h are compiled with any of the
  following options, errors will be reported at link-time (PPU side) or
  compile-time (SPU side, C++).
  -D_NO_INLINE_DEFINITIONS
  -std=c89
  -std=gnu89
  -std=c++98

<SPU>
- If very large amount of stack or heap area is used, heap area may be
  destroyed. SPU ABI allows accessing memory at negative offsets from
  stack pointer up to -2000 as well as positive offsets, but using

negative offsets is not guaranteed in some cases due to a bug.
Negative offsets from stack pointer are used in spu_printf(), leaf functions, etc.

USB

<USB Driver>
- When performing isochronous IN transfer with a Full-Speed device, data whose size per frame exceeds 512 bytes cannot be transferred correctly.
  This problem will be fixed in a future release.

- Multi isochronous transfer of a High-Speed device is not supported.
  This problem will be fixed in a future release.

- From SDK090, the usbd/usbhphone sample is attached to LDD within the system. Therefore, it does not operate.

- When connecting or disconnecting a device to a USB port of the machine body, other USB devices already connected may be disconnected or may have an impact on its data communication.
  To avoid these problems, connect a self power hub to one of the USB ports of the machine body.

NP Score Ranking Utility

- The score that is registered to the ranking board that is used in the sample is cleared irregularly.

(Added in Release 110.006)
- The following wrong description on the return value of sceNpScoreDestroyTransactionCtx() upon normal termination has been found in the reference manual:

  (Wrong)   Returns ID of NP score ranking transaction context (>0) upon normal termination.
  (Correct) Returns 0 upon normal termination.

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libgcm

(Added in Release 110.006)
- After releasing the memory that has been mapped by cellGcmMapMainMemory(), if you reserve a larger memory and then execute cellGcmMapMainMemory(), RSX(TM) may not be able to access the newly mapped memory area.

(Added in Release 110.006)
- cellGcmSetFragmentProgramParameter() in unsafe mode may not generate a command correctly.

(Added in Release 110.006)
- Even if cellGcmSetSurface() is executed after specifying CELL_GCM_LOCATION_MAIN for the member depthLocation of the structure CellGcmSurface, the behavior is the same as that of when CELL_GCM_LOCATION_LOCAL is specified.

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libgcm/PSGL

- Flip completion notice is returned before completion.
  For details, see the Technical Note 200609-23.
  https://ps3.scedev.net/technotes/view/320/

SPU ELF Binary Translator (replace_hbr.pl)

(Added in Release 110.006)
- The target areas of the binary translator depend on whether or not an elf file contains section headers.

  - If an elf file contains section headers, the targets are executable sections.

  - If an elf file contains no section headers, the targets are executable segments.

  When an SPU program is written in assember, please be careful not to

locate any data in the above sections or segments because they might
be replaced by the binary translator.