

CAT-DEV Release Notes

NINTENDO CONFIDENTIAL PROPRIETARY

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V3 CAT-DEV System

This is a new CAT-DEV (Cafe Tool for Development) system release. The V3 system includes several hardware fixes and changes for the Cafe main application processor, system ASIC, and host bridge interface.

Note that the system board and chipset are early versions and, as such, have bugs that impact performance and functionality.

Distribution

This SDK is intended for licensed game and application developers only.

SDK Support

This platform requires SDK 1.7 or later.

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1.0 Host Bridge Interface

1.1 Features

NEW New Design

- Gigabit Ethernet interface to Host PC (instead of USB).
- Internal hard drive for “H-Reader” mode.
- Multiple Interface Bridges
 - SATA-to-Ethernet Bridge for higher-speed file emulation and host I/O.
 - SDIO-to-Ethernet Bridge for legacy file emulation and host I/O.

1.2 Known Issues

NEW The internal hard drive support is not yet available.

- This feature is under development and will be available in a future host bridge firmware update.

NEW High speed IO via SATA-to-Ethernet bridge is not yet available.

- This feature is under development and will be available in a future host bridge firmware update.
- Current performance and capacities:
 - Host IO:
 - Aggregate bandwidth for all channels: ~4-5 Mbit/sec (peak).
 - 64 channels max.
 - Host File IO:
 - Read bandwidth: ~ 8 MByte/sec (peak).
 - Write bandwidth: ~ 2 MByte/sec (peak).

Multiple CAT-DEV Support

- Multiple CAT-DEV systems cannot be connected simultaneously to a single host PC.
- This will be supported in a future version of the SDK.

2.0 Main Application Processor

2.1 Features

- PowerPC architecture.
- Three cores (fully coherent).
- 3MB aggregate L2 Cache size.
 - core 0: 512 KB
 - core 1: 2048 KB
 - core 2: 512 KB
- Write gatherer per core.
- Locked (L1d) cache DMA per core.

2.2 Fixes

NEW Lighter-weight synchronization primitives can now be used, for improved performance.

NEW Data cache intervention enabled for improved cache performance.

2.3 Known Issues

NEW Intervention for instruction caches remains disabled, due to a hardware bug.

Core clock speed is not final.

3.0 Main Memory

3.1 Features

- Up to 3GB of main memory (CAT-DEVs only).
- Please note that the memory available from the Cafe SDK and Operating System may vary. Please see the Cafe SDK Release Notes for current information.

4.0 Graphics and Video

4.1 Features

- Unified shader architecture executes vertex, geometry, and pixel shaders
- Multi-sample anti-aliasing (2, 4, or 8 samples per pixel)
- Read from multi-sample surfaces in the shader
- 128-bit floating point HDR texture filtering
- High resolution texture support (up to 8192 x 8192)
- Indexed cube map arrays
- 8 render targets
- Independent blend modes per render target
- Pixel coverage sample masking
- Hierarchical Z/stencil buffer
- Early Z test and Fast Z Clear
- Lossless Z & stencil compression
- 2x/4x/8x/16x high quality adaptive anisotropic filtering modes
- sRGB filtering (gamma/degamma)
- Tessellation unit
- Stream out support
- Compute shader support

4.2 Fixes

NEW Endian-swap no longer required for direct texture access.

4.3 Known Issues

NEW 4 Quad Pipe operation is not yet reliable.

- Enabling 4QP may cause the GPU7 to hang. The default setting remains 2QP until the next revision of hardware.

5.0 Sound and Audio

5.1 Features

Dedicated 120MHz audio DSP.

Support for Multiple Output Devices

- 6 channel discrete uncompressed audio for HDMI.
- 2 channel audio for the Cafe DRC controller.
- Monaural audio for the Cafe Remote controller.

5.2 Fixes

NEW The DSP is now available for sound processing.

- Previously, a hardware bug would cause the DSP to hang or generate noise intermittently.

6.0 Game Controllers

6.1 Features

NEW Cafe Display Remote Controller

- New versions of the DRC controller and host chipset are included.

NEW Cafe Remote Controller

- Wired and Wireless versions are now supported.

NEW Classic Controller

- The external CCA (classic controller adapter) is no longer required.

6.2 Bug Fixes

NEW [0648] High failure rate when attempting to connect 4 remotes at the same time.

- This was a hardware that has been resolved for V3.

7.0 Networking

7.1 Features

- 802.11 b/g/n Wifi.

8.0 Built-in Storage

8.1 Features

- 512 MB SLC NAND, reserved for the system.
- 8 GB MLC NAND for applications.

9.0 Peripherals

9.1 Features

- 2 x USB 2.0 host controllers x 2 ports each.
- SDCard Slot.