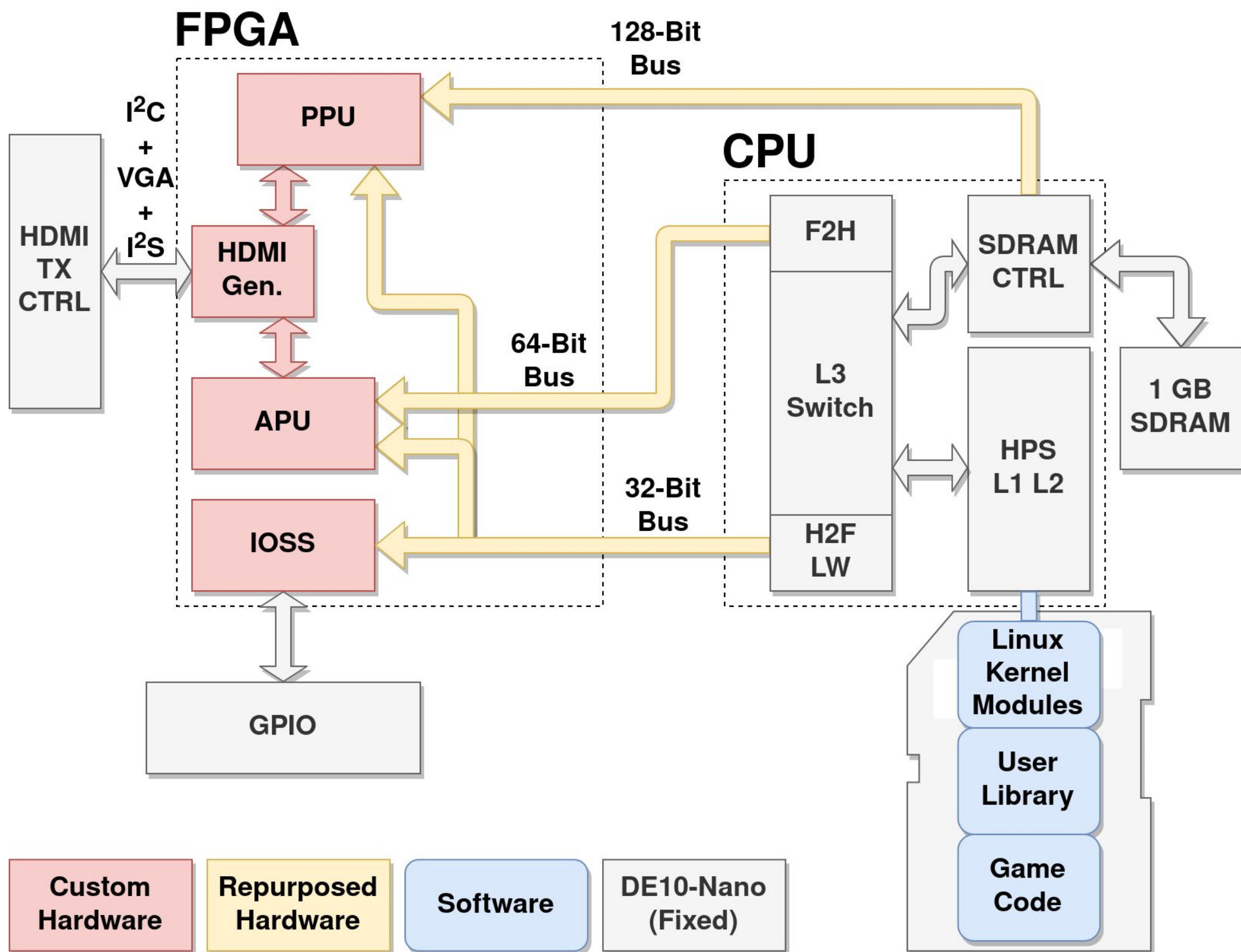


Product Pitch

FP-GAME is a retro video game console and development kit for hobbyists and learners.

- Low cost (< \$200) compared to traditional development kits (~ \$2000).
- Offers features similar to the NES and GBA.
- More accessible development experience compared to traditional retro consoles.
 - Open source: <https://github.com/FP-GAME>
 - Includes detailed instructions for the entire development process.
 - Convenient user libraries allow hobbyists to focus on developing their games, rather than on obscure hardware details or Assembly programming.

System Architecture

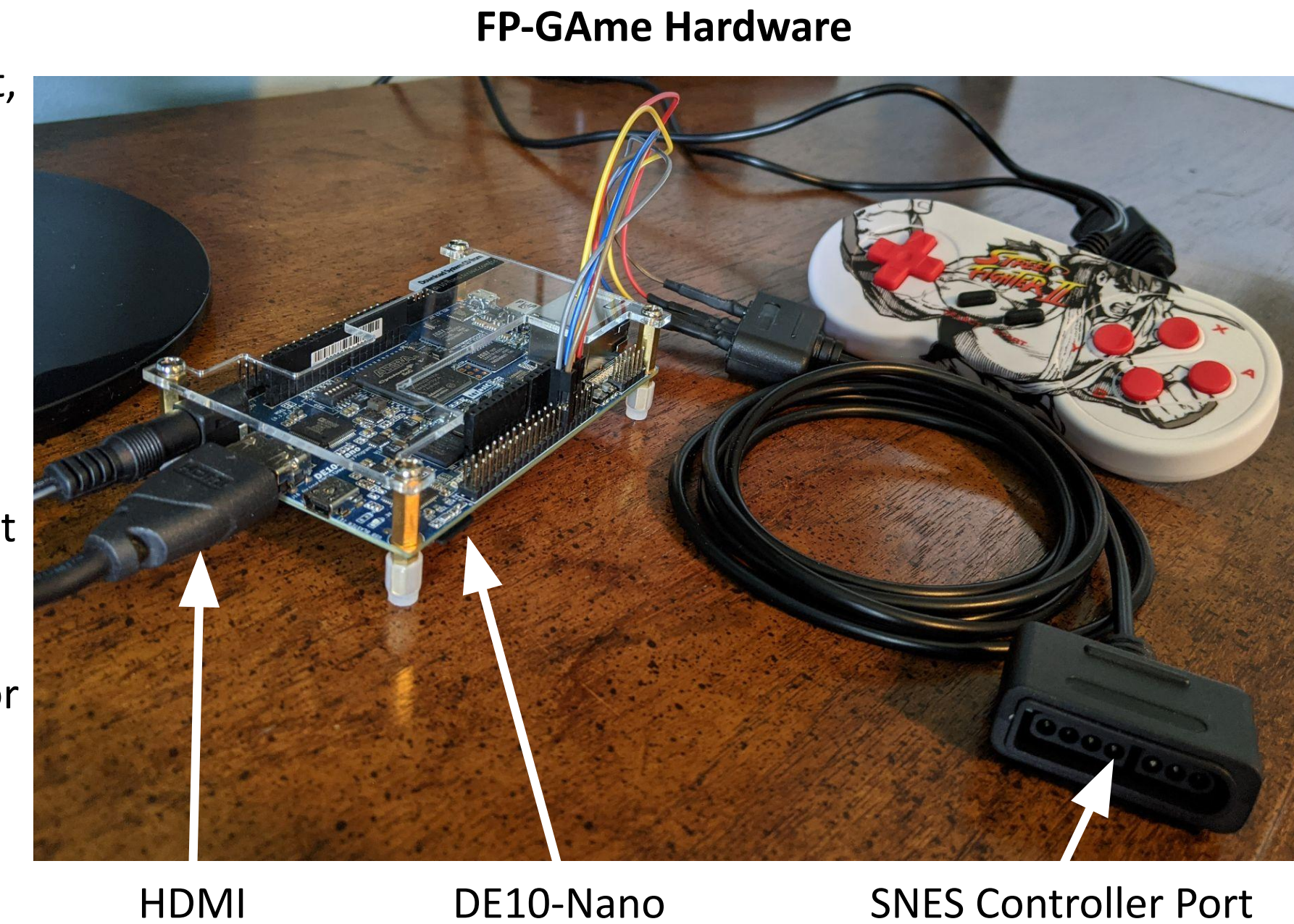


System Description

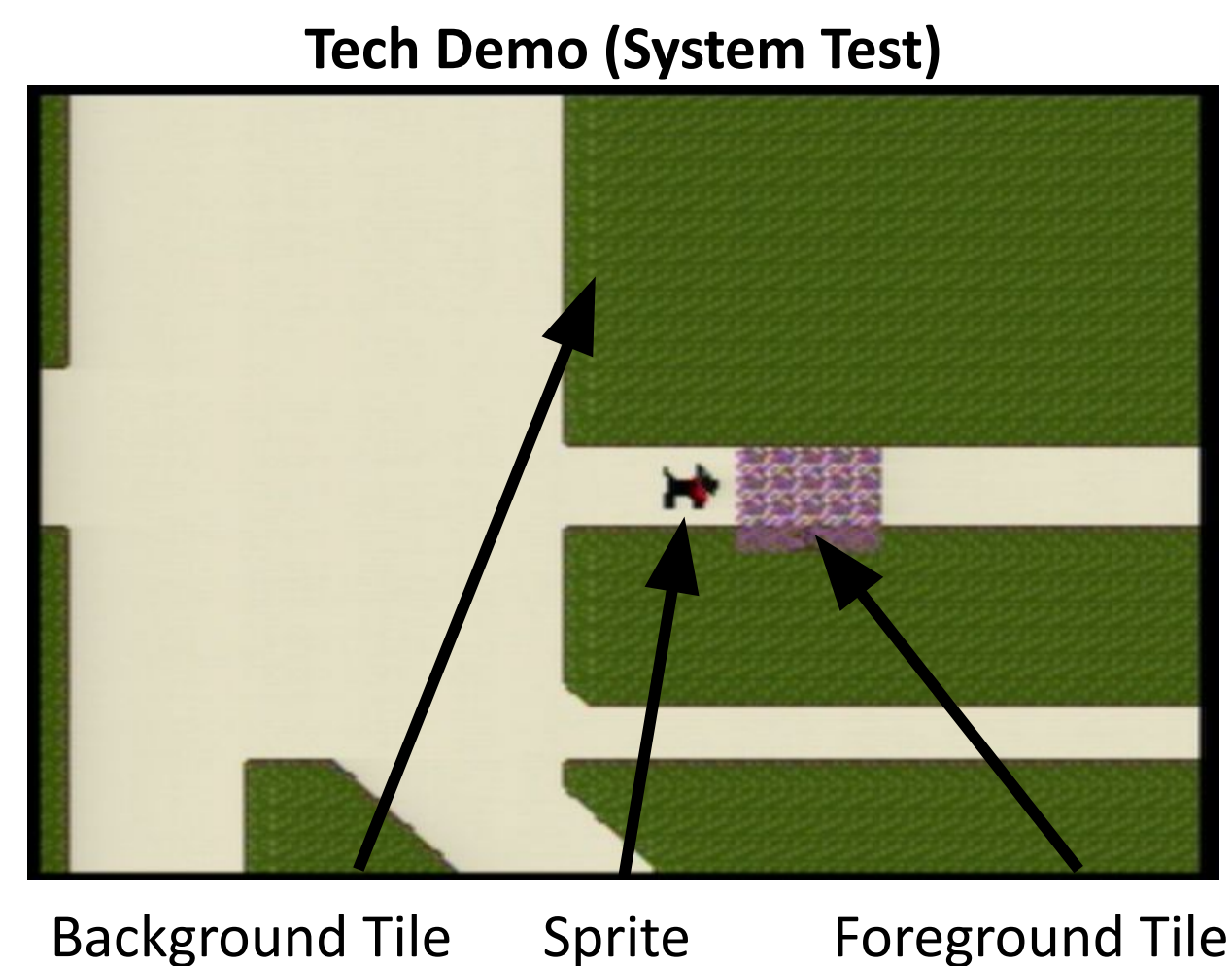
FP-GAME utilizes the DE10-Nano board, equipped with an Cyclone V SoC, HDMI output, and GPIO.

Cyclone V SoC:

- FPGA contains our Pixel Processing Unit (PPU), Audio Processing Unit (APU), I/O Subsystem (IOSS).
- APU supports 8-bit signed PCM at 32 KHz.
- PPU contains 2 tile layers with independent scrolling and a sprite layer.
- Game code calls user library, which communicates with kernel mode drivers for our custom hardware.



System Evaluation



Foreground, background, and sprite layers functionally correct, outputs at 60Hz 640x480

