



CS4803DGC Design Game Console
Spring 2009
Prof. Hyesoon Kim

Georgia Tech College of Computing

The slide features a grid of images including a building, a blue square, a green square, a purple square, and various circuit board patterns.

What do we learn?

- ~~Game programming~~
- ~~Game architecture~~
- ~~Graphics programming~~
- Game computer architecture
- Computer architecture case studies
- Emerging architecture
- Low level programming
- Graphics processor hardware
- CUDA programming

Georgia Tech College of Computing

The slide includes a small header with four colored squares (orange, blue, purple, green).

Xbox 360

- http://www.metacafe.com/watch/yt-PGoQx112D6I/howto_disassemble_an_xbox_take_it_apart_dot_net/

Georgia Tech College of Computing

The slide includes a small header with four colored squares (orange, blue, purple, green).

Game Console

- CPU
- GPU
- I/O devices

Georgia Tech College of Computing

Who Should Take ?

- If you want to develop
 - Xbox 720 Xbox 1440?
 - Playstation 4,5,6 ?
- If you want to program efficiently using those hardware.
- Background
 - CS2200
 - Haven't taken CS6290/CS4290
 - Haven't taken CS8803SC

Georgia Tech College of Computing

To Graduate students

- This course is designed for undergraduate students who haven't taken CS6290.
- Suggested course
 - CS8803MCA: Many core architecture


Georgia Tech College of Computing

Course Info

- A tentative homepage address
- <http://www.cc.gatech.edu/~hyesoon/spr09/index.html>

Georgia Tech College of Computing

Why Game Consoles?



Georgia Tech College of Computing

Effects of Game Industries

- Leading the industry
- Game processors are used for other applications
 - GPGPU:
 - Medical image processing
 - Scientific applications
- Movie industries

Georgia Tech College of Computing

Requirements for GC

- Time constrain
- Lots of Data
- Heavy use of graphics
- Both Integer/floating point operations are important
- Floating point → low precision
- Stream applications
- Embedded systems
- Various I/O devices
- No comparability issues (no reason to support legacy code)
- All the platform is stable:
- Platform optimizations

Georgia Tech College of Computing

Xbox 360



Georgia Tech College of Computing

Xbox 360 System Block Diagram

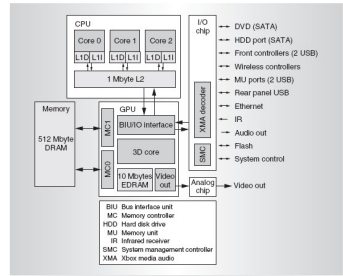


Figure 2. Xbox 360 system block diagram.

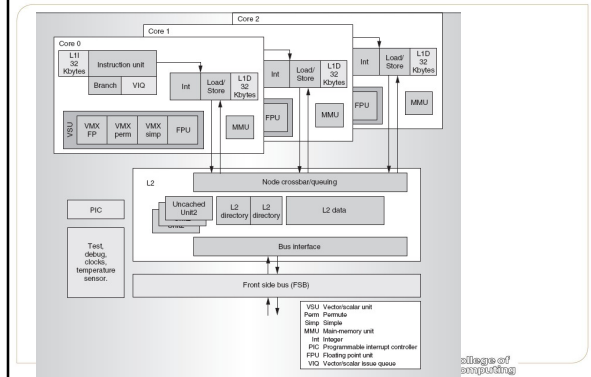
Georgia Tech College of Computing

Xbox 360 Architecture

- 3 CPU cores
 - 4-way SIMD vector units
 - 8-way 1MB L2 cache (3.2 GHz)
- 48 unified shaders
- 3D graphics units
- 512-Mbyte DRAM main memory
- FSB (Front-side bus): 5.4 Gbps/pin/s
- 10.8 Gbyte/s read and write



Xbox 360 CPU Block Diagram



Announcements

- Student's information sheet
- Due (1/15)
- Sign in the sign up sheet