BIOS POST Code Introduction

- Outline
    - What is POST Code
    - The Meaning of POST Code
    - Using POST Code to Debug
    - Conclusions

What is POST Code

- POST : Power On Self Test
  - The tag thrown out by BIOS
    - Usually, BIOS would out some number through 80ports. Using I/O access card (debug card), user could read those number.
    - The POST codes used by Award, Phoenix, and AMI are different.
    - These numbers mean something was executing in the system.

What is POST Code

- POST Code as BIOS executing process
  - Standard POST Code
    - These numbers were used as standard process.
  - BIOS Debug Code
    - These numbers depend on various project.

The Meaning of POST Code

- Award Standard POST Code (ASUS)
  - C0 –
    - CPU initialization
    - Chipsets initialization
    - Super I/O initialization
    - Asus ASIC initialization
    - OEM components initialization
    - Jumperless Setting

The Meaning of POST Code

- Award Standard POST Code (ASUS)
  - C1 –
    - Memory sizing and initialization
    - Onboard VGA configuration
  - 0C –
    - Decompress BIOS codes
  - C3 –
    - BIOS checksum

The Meaning of POST Code

- Award Standard POST Code (ASUS)
  - After C3
    - If checksum errors was found, then jump into boot block. Post code would be 05, 0D, 41, 0FF to boot system into DOS mode.
  - C5 –
    - Decompress ACPI related codes

The Meaning of POST Code

- Award Standard POST Code (ASUS)
  - 05 –
    - Keyboard initialization
  - 07 –
    - Check RTC power status
  - 09 –
    - Chipsets registers setting
    - CPU MSR setting
    - APIC initialization

The Meaning of POST Code

- Award Standard POST Code (ASUS)
  - 0A –
    - BIOS interrupt routines initialization
  - 0B –
    - CPU information collection
    - Power management initialization
    - CMOS contents into memory
    - PnP early initialization and PCI enumeration
    - Hardware monitoring initialization

The Meaning of POST Code

- Award Standard POST Code (ASUS)
    - 0C –
        - CPU Microcode update
    - 0D –
        - CPU MTRR setting
        - VGA initialization
    - 0E –
        - Showing POST screen

The Meaning of POST Code

- Award Standard POST Code (ASUS)
    - 18 –
        - 8259 Timer initialization and test
    - 30 –
        - Memory scanning

The Meaning of POST Code

- Award Standard POST Code (ASUS)
  - 31 –
    - Chassis intrusion detect
    - Memory rolling test
    - USB legacy support initialization
  - 32 –
    - PNP device configuration
    - Super I/O configuration

ASUS®

The Meaning of POST Code

- Award Standard POST Code (ASUS)
  - 3D –
    - Setup ACPI data
    - PNP Device initialization
    - Keyboard and Mouse installation
  - 3E –
    - Hardware monitoring status report

The Meaning of POST Code

- Award Standard POST Code (ASUS)
  - 41 –
    - Setup menu entering check
    - Floppy initialization
  - 42 –
    - Chipaway Virus initialization
    - HDD initialization

The Meaning of POST Code

- Award Standard POST Code (ASUS)
  - 45 –
    - Co-processor initialization
  - 4E –
    - POST error report
    - Final check with Setup menu entering
  - 4F –
    - APM initialization

The Meaning of POST Code

- Award Standard POST Code (ASUS)
  - 50 –
    - Saving all setup menu item's settings into CMOS
  - 52 –
    - PCI devices ROM initialization
    - Revise interrupt routines' hooks
  - 60 –
    - Mouse RAM reservation

The Meaning of POST Code

- Award Standard POST Code (ASUS)
  - 61 –
    - Onboard components final initialization
    - Showing system configuration
  - 62 –
    - Keyboard related setting
    - RTC final check

The Meaning of POST Code

- Award Standard POST Code (ASUS)
  - 63 –
    - PNP final initialization
      - ESCD, Boot devices, etc.
    - Boot menu
    - Jumping into final boot sequence
  - FF –
    - Booting into OS

Using POST Code to Debug

- 80Port Checking
- BIOS Engineers' Insertion
- Simple Debug Tool

Conclusions

- POST Codes are useful for first step debug.

- RMA and TSD could evaluate system error conditions.