GameCube Boot Sequence

Memo received from Atsushi Watanabe of Nintendo on 11/27/03

1. Run BS1 on IPLROM (0xFFF0_0000)
   (BS1 is Boot Sequence Level 1)
   1-1. Initialize ARAM
   1-2. Initialize CPU
   1-3. Initialize memory
   1-4. Load BS1 to I Cache
       (To avoid twice read. IPLROM decoder permits only single sequential read)
   1-5. Load BS2 to memory by DMA and jump to it
2. Run BS2 on RAM (0x8130_0000)
   2-1. Initialize BootInfo part1
       (BootInfo includes some information for boot)
   2-2. Power on Drive
       (Twice power on at 1.15sec interval to avoid drive bug)
   2-3. Read DiskID from Disk and store it 0x8000_0000
       (Read DiskID command is 1st command for drive
        DiskID includes unique ID for every one title and some information)
   2-4. If the game use HW Audio Streaming, informs it to drive
       (The Audio Streaming flag is in DiskID)
   2-5. Read Apploader header to take in Apploader size
       (Apploader is application loader)
   2-6. Read Apploader (0x8120_0000)
       (From then on, often call Apploader and get next read point)
       2-6-1. Read BB2 to get FST and dol file position on disk
           (BB2 is Boot Block 2. BB1 is meaningless data now)
       2-6-2. Read BI2 header to determine position of BI2 on memory
           (BI2 is Boot Info 2)
       2-6-3. Read BI2
       2-6-4. Read dol file
          2-6-4-1. Read dol header
          2-6-4-2. Clear bss section
          2-6-4-3. If flag is on, check dol size by "dolLimit"
          2-6-4-4. If this is product version,
                check whether all section positions are under 7M
          2-6-4-5. Read text/data section
       2-6-5. Read FST
         (But, if FST is more interior than dol, read FST before dol)
       2-6-6. Initialize BootInfo part2
   2-7. Check country code
       (If country code from disc is differ from hardware code, display error message)
   2-8. Read banner file
       (Banner file is displayed on only IPL menu screen)
   2-9. Jump to entry point
3. Run game code