

1.



Figure 1: OS Main Module (dennis_os.bin) – File System Operations



Figure 1.1 (Zoomed-In)

2.



Figure 2: OS Memory Manager (dennis_os_memory.bin) – Memory Operations Execution

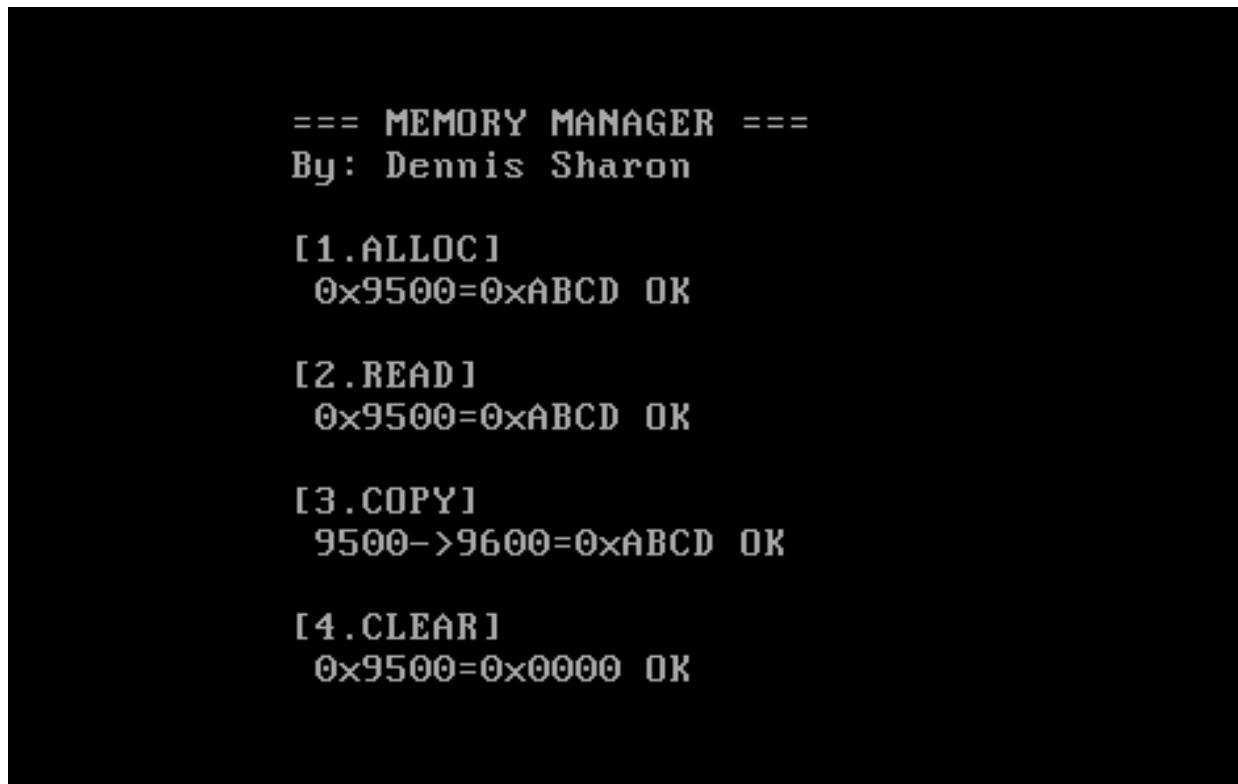


Figure 2.1 (Zoomed-In)

3.



Figure 3: OS Compute Engine (dennis_os_compute.bin) – Arithmetic Functions Output

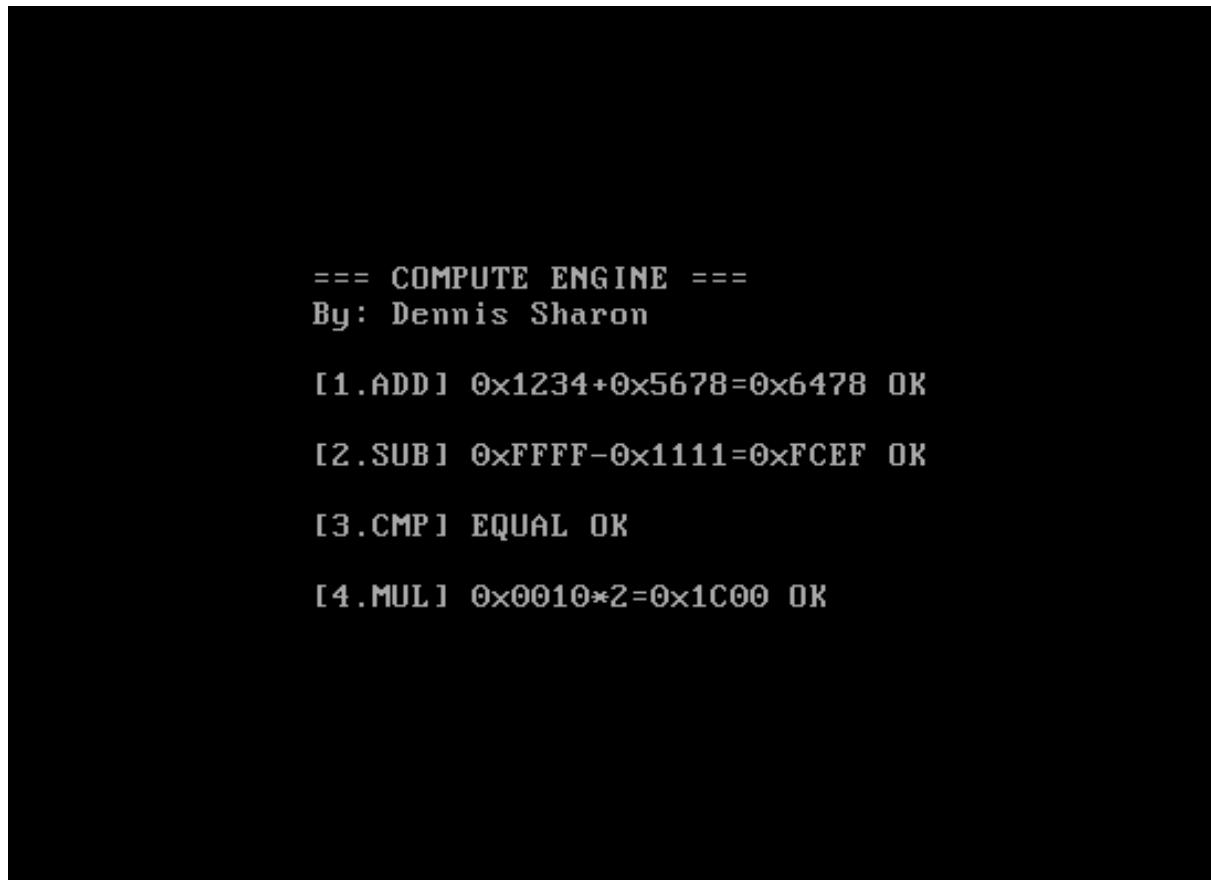
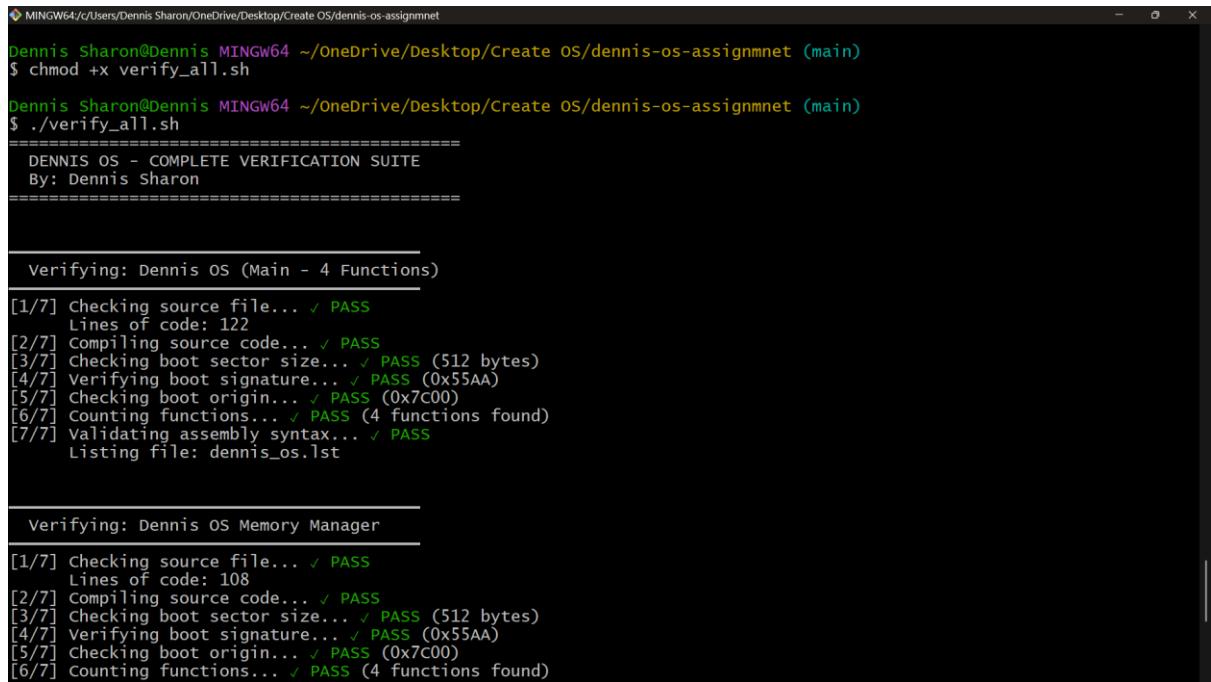


Figure 3.1 (Zoomed-In)

4.



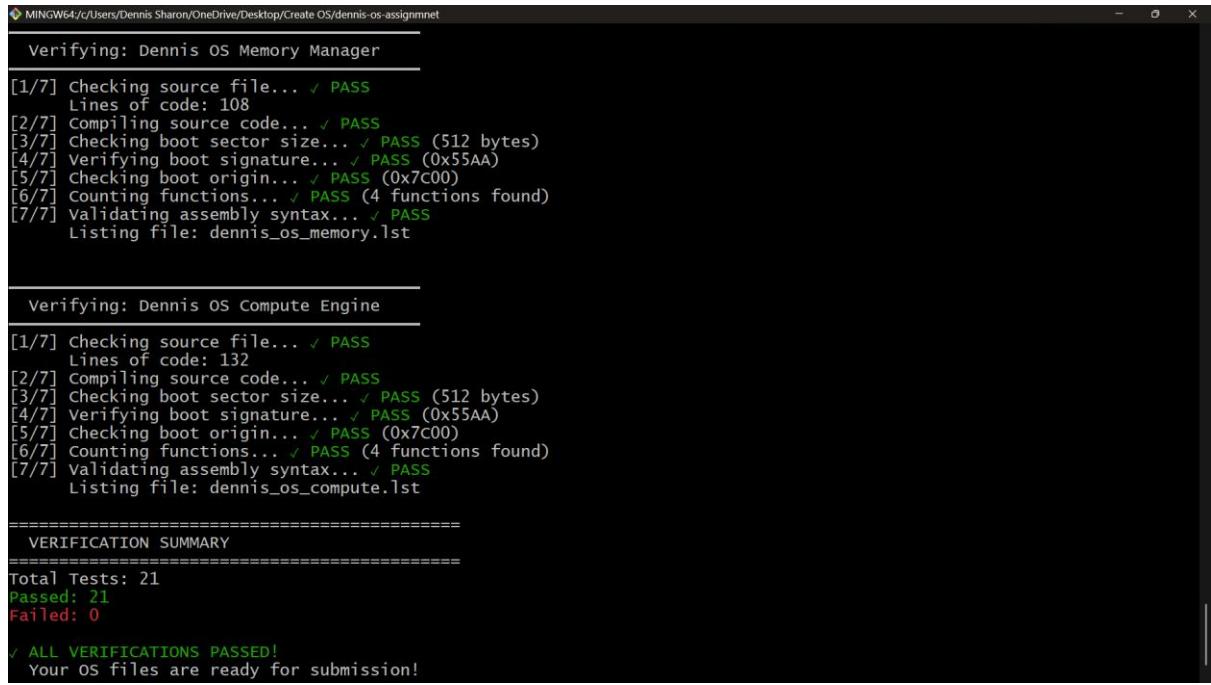
```
DENNIS SHARON@DENNIS MINGW64 ~/OneDrive/Desktop/Create OS/dennis-os-assignmnet (main)
$ chmod +x verify_all.sh
DENNIS SHARON@DENNIS MINGW64 ~/OneDrive/Desktop/Create OS/dennis-os-assignmnet (main)
$ ./verify_all.sh
=====
DENNIS OS - COMPLETE VERIFICATION SUITE
By: Dennis Sharon
=====

Verifying: Dennis OS (Main - 4 Functions)
[1/7] Checking source file... ✓ PASS
  Lines of code: 122
[2/7] Compiling source code... ✓ PASS
[3/7] Checking boot sector size... ✓ PASS (512 bytes)
[4/7] Verifying boot signature... ✓ PASS (0x55AA)
[5/7] Checking boot origin... ✓ PASS (0x7C00)
[6/7] Counting functions... ✓ PASS (4 functions found)
[7/7] Validating assembly syntax... ✓ PASS
  Listing file: dennis_os.lst

Verifying: Dennis OS Memory Manager
[1/7] Checking source file... ✓ PASS
  Lines of code: 108
[2/7] Compiling source code... ✓ PASS
[3/7] Checking boot sector size... ✓ PASS (512 bytes)
[4/7] Verifying boot signature... ✓ PASS (0x55AA)
[5/7] Checking boot origin... ✓ PASS (0x7C00)
[6/7] Counting functions... ✓ PASS (4 functions found)
```

verify_all.sh Execution Results – Complete Module Verification (21 Tests Passed, 0 Failed)

(Figure 4.1)



```
Verifying: Dennis OS Memory Manager
[1/7] Checking source file... ✓ PASS
  Lines of code: 108
[2/7] Compiling source code... ✓ PASS
[3/7] Checking boot sector size... ✓ PASS (512 bytes)
[4/7] Verifying boot signature... ✓ PASS (0x55AA)
[5/7] Checking boot origin... ✓ PASS (0x7C00)
[6/7] Counting functions... ✓ PASS (4 functions found)
[7/7] Validating assembly syntax... ✓ PASS
  Listing file: dennis_os_memory.lst

Verifying: Dennis OS Compute Engine
[1/7] Checking source file... ✓ PASS
  Lines of code: 132
[2/7] Compiling source code... ✓ PASS
[3/7] Checking boot sector size... ✓ PASS (512 bytes)
[4/7] Verifying boot signature... ✓ PASS (0x55AA)
[5/7] Checking boot origin... ✓ PASS (0x7C00)
[6/7] Counting functions... ✓ PASS (4 functions found)
[7/7] Validating assembly syntax... ✓ PASS
  Listing file: dennis_os_compute.lst

=====
VERIFICATION SUMMARY
=====
Total Tests: 21
Passed: 21
Failed: 0

✓ ALL VERIFICATIONS PASSED!
Your OS files are ready for submission!
```

(Figure 4.2)

The comprehensive verification validates dennis_os.bin (file system operations), dennis_os_memory.bin (memory management), and dennis_os_compute.bin (arithmetic engine) through automated testing of NASM compilation, 512-byte binary size, boot signature (0x55AA), boot origin (0x7C00), and function count requirements.