**CSCI 465 9a. Debugging with PSWs**

The PSW presented in the dump of a job run in CSCI 465 is a little different than what you may have seen and worked with in CSCI 360. Here is an excerpt from a S0C7 (Data Exception) ABEND PSW:

19.35.57 JOB08478 IEA995I SYMPTOM DUMP OUTPUT 185

185 SYSTEM COMPLETION CODE=0C7 REASON CODE=00000000

185 TIME=19.35.57 SEQ=40839 CPU=0000 ASID=002C

185 PSW AT TIME OF ERROR 078D2000 00007572 ILC 6 INTC 07

185 ACTIVE LOAD MODULE ADDRESS=00007428 OFFSET=0000014A

185 NAME=SALESRPT

185 DATA AT PSW 0000756C - F859C1D5 C2D5F800 C1D0C2E0

185 AR/GR 0: 008F8030/000076C8 1: 00000000/000076C8

185 2: 00000000/00007678 3: 00000000/00000062

185 4: 00000000/008D69B0 5: 00000000/008F8588

185 6: 00000000/008C5FC8 7: 00000000/00FBCA00

185 8: 00000000/008FC780 9: 00000000/008CECB0

185 A: 00000000/00000000 B: 00000000/00008428

185 C: 00000000/00007428 D: 00000000/0000760C

185 E: 00000000/00007552 F: 01000002/00C94840

185 END OF SYMPTOM DUMP

19.35.57 JOB08478 IEF450I KC03nnnA JSTEP02 - ABEND=S0C7 U0000 REASON=00000000

To find the abending instruction, you must subtract X'00007428' (ADDRESS highlighted in blue) from the address in the PSW, X'00007572'. Then you must subtract the ILC of 6 from the result of the prior subtraction. You now have the address of the abending instruction. (Note that the ILC is given to you in bytes and does not require you to multiply it by two like you did in CSCI 360.)

But, note the X'0000014A' (OFFSET highlighted in blue). This is the displacement into your program of the abending instruction.

The address you see at ADDRESS=00007428 is the actual virtual address where the operating system loaded your program when it was fetched for execution. In CSCI 360, you were made to believe – for simplicity's and learning's sake – that your program was always loaded at X'00000000' which is impossible as the operating system itself is loaded into low-core memory and you have no access to that area.

By the way, the hexadecimal value provided with the label ADDRESS= is sometimes known as the Entry Point Address, or EPA.