

Princeton University
COS 217: Introduction to Programming Systems
Using C Bit-Fields to Create SPARC Machine Language

```
int assemble3aMnemonic(
    unsigned int uiOp, unsigned int uiOp3,
    unsigned int uiRs1, unsigned int uiRs2,
    unsigned int uiRd)
{
    struct
    {
        unsigned int uiOp: 2;
        unsigned int uiRd: 5;
        unsigned int uiOp3: 6;
        unsigned int uiRs1: 5;
        unsigned int uiI: 1;
        unsigned int uiAsi: 8;
        unsigned int uiRs2: 5;
    } sInstruction;

    sInstruction.uiOp = uiOp;
    sInstruction.uiRd = uiRd;
    sInstruction.uiOp3 = uiOp3;
    sInstruction.uiRs1 = uiRs1;
    sInstruction.uiI = 0;
    sInstruction.uiAsi = 0;
    sInstruction.uiRs2 = uiRs2;
    return *((int*)(&sInstruction));
}
```