

University of Illinois at Urbana-Champaign
Dept. of Electrical and Computer Engineering

ECE 220: Computer Systems & Programming

Stack Frames Revisited

Recall Why ISAs Define Calling Conventions

A compiler must **systematically transform function calls into assembly instructions.**

Why systematically?

1. The compiler is a computer program: that's all it can do!
2. **Code generated by different compilers should interoperate**, so those compilers must make the same choices for subroutine call interfaces.

Recall the LC-3 Calling Convention

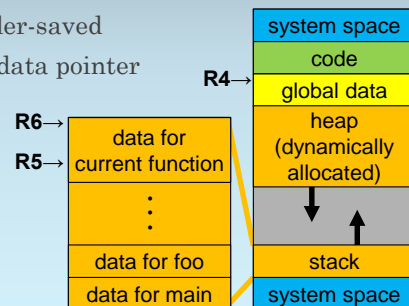
R0-R3: caller-saved

R4: global data pointer

R5: frame pointer

R6: stack pointer

R7: return address



Recall the Structure of the LC-3 Stack Frame

R6 points to top of stack.

R5 points to bottom of local variables.

R5+0, -1, ... are local variables.

R5+4, +5, ... are parameters.

