

Princeton University  
 COS 217: Introduction to Programming Systems  
 SPARC Assembly Language “for” Statement Optimization

<p><b>C:</b></p> <pre> int i; int max; ... for (i = 0; i &lt; max; ++i) {     instruction1;     instruction2;     ...     instructionN; } ... </pre>	
<p><b>Assembly language:</b></p> <pre> ! Register map: ! %10 int i; ! %11 int max;  ... clr %10 loopstart: cmp %10, %11 bge loopend nop instruction1 instruction2 ... instructionN inc %10 ba loopstart nop loopend: ... </pre>	<p><b>Optimized assembly language:</b></p> <pre> ! Register map: ! %10 int i; ! %11 int max;  ... ba looptest clr %10 loopstart: instruction2 ... instructionN inc %10 looptest: cmp %10, %11 bl,a loopstart instruction1 ... </pre>