Quadruples

The quadruples work in the following manner:

1. Pops the operands (if any) from the top of the stack.
2. Applies the operation defined by the quadruple.
3. Inserts the result (if available) back to the top of the stack.

In the following table, we denote the top (the last element) of the stack as $S1$, and the 2nd last element of the stack as $S2$.

Quadruple	Description
Operations Quadruples	
ADD	$S1 \leftarrow (S2 + S1)$
SUB	$S1 \leftarrow (S2 - S1)$
MUL	$S1 \leftarrow (S2 * S1)$
DIV	$S1 \leftarrow (S2/S1)$
MOD	$S1 \leftarrow (S2\ MOD\ S1)$
NEG	$S1 \leftarrow (-S1)$
AND	$S1 \leftarrow (S2\ AND\ S1)$
OR	$S1 \leftarrow (S2\ OR\ S1)$
NOT	$S1 \leftarrow NOT(S1)$
SHL	$S1 \leftarrow (S2 \ll S1)$
SHR	$S1 \leftarrow (S2 \gg S1)$
compG	$S1 \leftarrow (S2 > S1)$

compGE	$S1 \leftarrow (S2 \geq S1)$
compL	$S1 \leftarrow (S2 < S1)$
compLE	$S1 \leftarrow (S2 \leq S1)$
compEQ	$S1 \leftarrow (S2 = S1)$
compNEQ	$S1 \leftarrow (S2 \neq S1)$
Type Conversion Quadruples	
CONV	Converts $S1$
Stack Quadruples	
PUSH <value>	Pushes <value> to the top of the stack.
POP <dst>	Pops $S1$ and saves it into <dst>
Jump Quadruples	
JMP <label>	Unconditional jump to the given label.
JNZ <label>	Jump to the given label if $S1$ is not equals to zero.
JZ <label>	Jump to the given label if $S1$ is equals to zero.
Function-related Quadruples	
PROC <ident>	Defines a new procedure.
CALL <ident>	Calls an already defined procedure.
RET	Return from a procedure.