MIPS Register-Usage Conventions

Special hardware roles:

$0	- hardwired to always contain 0
$31	- return address from a procedure - always set by `jal`.

Registers to avoid using

$1	- assembler temporary. The assembler may convert user-written memory reference and jump instructions to two instruction sequences using this, so use this very carefully (if at all)
$26, $27	- used by operating system kernel, so may change unpredictably when an interrupt occurs. **Therefore, user programs should not use these**.

Caller-save registers

$2, $3	- return value from procedures.
$4-$7 or $4-$11	- parameters to procedures (two different conventions).
$8-$15 or $12-$15	- temporaries (depending on which parameter convention is used).
$24-25	- temporaries

Callee-save registers

$16-$23	- temporaries.
$28 ($gp)	- points to global variable storage area in memory.
$29 ($fp)	- points to stack frame for current procedure; if not used for this purpose, a procedure may use this for any purpose.
$30 ($sp)	- stack pointer. (Follows special conventions - decrement at procedure entry; increment by same amount at exit; value must only change by a multiple of 16)