

GNU: Declaring Section Names Explicitly

The GNU C Compiler places the code it generates from our source in one of three sections, i.e., `text`, `data`, `bss`. Sometimes we need additional sections or certain objects to appear in special sections. The GNU compiler allows us to declare a section name explicitly so that we can place the special section at a particular address.

The syntax to declare section names explicitly is:

```
__section__("name") declaration
```

The following is a sample C code that uses several specific section names:

```
__section__ ("STACK")      char stack[100] = {0};
__section__ ("INITVAR")    int seven = 7;
__section__ ("FRTREGISTER") unsigned char *frt = (unsigned char *) 0xff90;

main()
{
    int sum = 0;

    sum = sum + seven;
    *frt = 0xfb70;
}
```

The compiler generated Assembly listing:

```
;      GCC For the Hitachi H8/300
;      By Hitachi America Ltd and Cygnus Support
;      release 2.1

        .file    "test.c"
        .global  _stack
        .section  STACK
_stack:
        .byte  0
        .space  99
        .global  _seven
        .section  INITVAR
        .align  2
_seven:
        .word  7
        .global  _frt
        .section  FRTREGISTER
        .align  2
_frt:
        .word  65424
        .section .text
        .align  2
        .global  _main
_main:
        push   r6
        mov.w  r7,r6
```

```
jsr    @__main
mov.w  @_frc,r1
mov.b  #112,r01
mov.b  r01,@r1
.L1:
pop    r6
rts
.end
```

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