memory

Flash

Vector tables
.text
.rodata
.data
unused

RAM

.bss
.data
stack
heap

copy
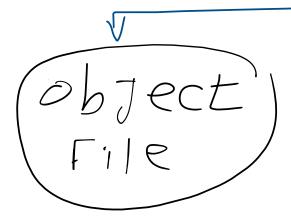
Data sections:

1- .data
   (1) local static initialized
   (2) global static initialized
   (3) global initialized
2- .bss
   (1) local static uninitialized

(2) global static uninitialized

(3) global uninitialized

3- .rodata

global const

4- Stack

(1) local initialized

(2) local const

difference between

object file

elf file

1- Relocatble addresses

1- Absolute addresses(physical)

VMA

LMA

Virtual memory addresses

load memory addresses

- Startup file:
  1) call main
  2) initialize .bss & reverse memory
  3) copy data from (FLASH) -> (RAM)
  4) initialize FPU (Floating Point Unit)
  5) take care of vector table
  6) take care of MSP (Main Stack Pointer)

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- Linker_script:
  1) resolve all symbols
  2) merge all input files into a single file
  3) relocate code and data
  4) section concatenation
  5) compile time binding (locate the physical addresses in its physical board, because the file.o has the vertiual addresses)

- Key Words of linker script:
  1) ENTRY
  2) MEMORY
  3) ALIGN
  4) SECTIONS
  5) KEEP
  6) AT>