



# GENTOS

Application Note #006 (AN006-V1.3)

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## [GENTOS] How to Reduce the Code Size using CORERIVER Compiler (gencc)

V1.3

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# 1. Assign Parameters as Global Variables

- ◆ The parameter passing by a function with many parameters causes the code size to be increased.
- ◆ To reduce the code size, assign some parameters in functions as global variables.

## Normal Code

```
typedef unsigned char BYTE; // 1 Byte
typedef unsigned int WORD; // 2 Bytes

//-----
void main(void) {
    BYTE input0, input1, output; // Local Variables

    sub_function(input0, input1, output);
}

//-----
void sub_function(BYTE input0, BYTE input1, BYTE output) {
    // Some C code is here.
}
```

## Recommended Code

```
BYTE input0, input1, output; // Global Variables

//-----
void main(void) {

    sub_function();
}

//-----
void sub_function(void) {
    // Some C code is here.
}
```

## 2. Replace Function to Its Content

- ◆ The code size can be increased by [the functions called rarely](#) or [the functions having small code size](#).
- ◆ Replace function to its content directly for small code size.
- ◆ The content of function can be defined as a MACRO.

### Normal Code

```
//-----  
void main(void) {  
    Main Statement Part 1  
    sub_function();  
    Main Statement Part 2  
}  
  
//-----  
void sub_function(void) {  
    Sub Statement Part  
}
```

### Recommended Code

```
//-----  
void main(void) {  
    Main Statement Part 1  
    Sub Statement Part // Replace Function to  
    Main Statement Part 2 // its content.  
}
```

### 3. Assign Variable using Suitable Data Size

- ◆ A variable with unsuitable data size (large) makes the code size to be larger.
- ◆ Reassign some variables using suitable data size.

#### Normal Code

```
typedef unsigned char BYTE; // 1 Byte
typedef unsigned int WORD; // 2 Bytes

WORD loop_cnt; // 2 Bytes, Global Variable

//-----
void main(void) {
    for(loop_cnt=0; loop_cnt<10; loop_cnt++) {
        :
    }
}
```

#### Recommended Code

```
BYTE loop_cnt; // 1 Byte, Global Variables

//-----
void main(void) {
    for(loop_cnt=0; loop_cnt<10; loop_cnt++) {
        :
    }
}
```

## 4. Remove the Option "--debug" when Compiling

- ◆ You can get the reduced code size by removing the option "--debug" when compiling.
- ◆ But, in this case, you cannot use the debugger on MDS equipment because the compiler loses the debug information.
- ◆ Instead of debugging, you can use the menu "Emulation\Download & Run" to run and verify the code.

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