

ARMKEIL

Microcontroller Solutions

Home (/)

Products (/product/)

Download (/download/)

Events (/events/)

Support (/support/)

Search Keil...

+

Go

Technical Support

Overview (/support/)

Search (/home/searchhelp)

Contact (/support/contact.asp)

Assistance Request (/support/request.asp)

Feedback (/support/feedback.asp)

Support Resources

Support Knowledgebase (/support/knowledgebase.asp)

Article Index (/support/topics.asp)

Top 10 Articles (/support/topten.asp)

Product Manuals (/support/man/)

Application Notes (/apnotes/)

Downloads (/download/)

Product Updates (/update/)

Discussion Forum (/forum/)

Books (/books/)

Product Information

Software & Hardware Products (/product/)

ARM Development Tools (/arm/)

C166 Development Tools (/c166/)

C51 Development Tools (/c51/)

C251 Development Tools (/c251/)

Debug Adapters (/ulink/)

Evaluation Boards (/boards2/)

Product Brochures (/product/brochures.asp)

Newsletters (/product/newsletters.asp)

Home (/) / Technical Support

ARM: LOCATING VARIABLES AT ABSOLUTE MEMORY ADDRESSES

Information in this article applies to:

MDK-ARM All Versions

CARM All Versions

GNU C Compiler for ARM All Versions

QUESTION

I need to locate a variable at a fixed memory address. How can I do this using C source code?

ANSWER

With the GNU GCC Compiler you may use only pointer definitions to access absolute memory locations. For example:

```
/* General Purpose Input/Output (GPIO) */
#define IOPIN0      *((volatile unsigned long *) 0xE0028000)
.
.
.
IOPIN0 = 0x4;
```

With the RealView ARM C Compiler, you may use either pointer definitions (as shown above) or `__attribute__((at(address)))` keyword to define a variable at a fixed memory address. In contrast to the pointer construct, the following definition also makes a correct memory reservation, so that the area cannot be used twice.

```
int var __attribute__((at(0x40001000)));
.
.
.
var = 4; // changes the memory location at 0x40001000
```

With the Keil CARM C Compiler, you may use either pointer definitions (as shown above) or `_at_` keyword to define a variable at a fixed memory address. As with the RealView C Compiler, the following definition also makes a correct memory reservation, so that the area cannot be used twice.

```
int var _at_ 0x40001000;
.
.
.
var = 4; // changes the memory location at 0x40001000
```

MORE INFORMATION

Refer to `__attribute__((at(address)))` variable attribute (http://www.keil.com/support/man/docs/armcc/armcc_chr1359124981140.htm) in the Compiler User Guide.

FORUM THREADS

The following Discussion Forum (/forum/) threads may provide information related to this topic.

at for Function Address (/forum/docs/thread13875.asp)

Last Reviewed: Wednesday, September 21, 2016

Did this article provide the answer you needed?


Yes
No
Not Sure

Submit

1 de 2

6/3/17 22:54

Products (/product/)		Downloads (/download/)	Support (/support/)	Contact
Development Tools	Hardware & Collateral	MDK-ARM (/demo/eval/arm.htm)	Knowledgebase (/support/knowledgebase.asp)	Distributors (/distis/)
ARM (/ARM/)	ULINK Debug Adaptors (/ulink/)	C51 (/demo/eval/c51.htm)	Discussion Forum (/forum/)	Request a Quote (/product/prices.asp)
C166 (/c166/)	Evaluation Boards (/boards2/)	C166 (/demo/eval/c166.htm)	Product Manuals (/support/man/)	Sales Contacts (/company/contact/)
C51 (/c51/)	Product Brochures (/product/brochures.asp)	C251 (/demo/eval/c251.htm)	Application Notes (/appnotes/)	
C251 (/c251/)	Device Database (/ddb2/)	File downloads (/download/file/)		
µVision IDE and Debugger (/uvision/)	Distributors (/distis/)			



ARM KEIL
Microcontroller Tools

Cookie Settings (/company/cookiesettings) | Terms of Use (/company/terms) | Privacy (/company/privacy) | Accessibility (/company/accessibility) | Contact Us (/company/contact/) | Feedback (/support/feedback.asp)

Copyright (/company/terms) © 2005-2017 ARM Group (/company). All rights reserved.

