



## Embedded GNU Jumpstart

*Off-Site Hands-On Training with Mr. William Gatliff*

**Date:** 9-12 December 2003

**Location:** Georgia Tech ATDC Building, Warner Robins, Georgia (100 mi. south of Atlanta)

**Times:** 8:30am - 5:00pm on Tuesday-Thursday, and 8:30am - 2:00pm on Friday

**Cost:** \$1,495 per person

### Course Materials Include:

- ARM720T Eval Board by Cogent (\$299 value)
- GNU X-Tools ARM Toolsuite by Microcross (\$499 value)
- Course Training Guide (\$99 value)

### Signup

Contact Microcross to make reservations.

Embedded GNU Jumpstart is an intensive tutorial on using GNU tools for embedded system development. Each topic is reinforced using a hands-on exercise performed by the student on real embedded hardware, which is theirs to keep at the end of class.

The examples are based on the ARM720T Evaluator Board (Sharp LH79520). This board is referenced on Microcross' website – called the CSB335. The material presented is applicable in theory to all GNU targets with few changes.

The straight-forward techniques presented in using GNU tools for embedded development makes this training course one of the most useful ever developed for GNU users. Authored by William Gatliff, Independent Consultant, and assisted by James Calvin, founder of Microcross, this training course sets a precedent for rapid training in GNU tools.

### Course Topics

- GNU License
- Simple "Hello, world!" Example
- Native, Simulated, Remote Debugging
- Advanced Debugging Techniques
- Graphical Debugging with DDD
- Dissecting an Application with GNU Utilities
- Working with Libraries in GNU
- Techniques in Using the GNU Compiler
- Linker Scripting for Embedded Applications
- Executable Object Manipulation/Conversion
- GNU Assembly Programming

- Interrupt Handling Using GNU
- Using / Porting Newlib C Library
- Using Debug Agents with GNU GDB
- Building Embedded Startup Code
- Modifying GCC Spec Files
- Using GNU C++ for Development
- Introduction to building applications with an example RTOS – MicroC/OS-II.
- Send us additional topics, and if possible, we will add them to this course.

### Target Processors Supported by Microcross

- ARC
- ARM / Thumb
- Atmel AVR
- Intel i386/486/Pentium
- Intel i960
- Intel XScale / Thumb
- MIPS 16/32
- MIPS 64
- Motorola / IBM PowerPC
- Motorola M68K/CPU32/Coldfire
- Motorola M-Core
- NEC V850x
- Panasonic MN10200
- Panasonic MN10300
- Renesas M32R
- Renesas H8/300
- Renesas SuperH-1/2/3/4
- Sparc/SparcLite/UltraSparc
- SuperH (SH1/SH2/SH3/SH3e/SH4)

### About Microcross

Microcross offers a full embedded solutions product line consisting of the award-winning Visual X-Tools™ IDE , GNU X-Tools™, Cogent Single Board Computers (based on ARM, Coldfire, PowerPC, MIPS and Xsale processors), Micrium uC/OS-II RTOS, EBSnet RTIPS network stack, Cogent RTEMS RTOS, and several debug connection agents, manufactured by companies like Abatron, Cybertec, EPI Tools, Macraigor Systems, and Nohau.

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*- Embedded Systems Specialists -*