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First, you need to install Metrowerks CodeWarrior for HC(S)12. You can go to the Metrowerks web site **http://www.metrowerks.com/MW/download/default.asp** get the CodeWarrior for the 6812 (you can download it or request a CD in the mail). Follow the Metrowerks instructions about downloading, installing and registering the application. Second, you put the 12K learning edition "license.dat" file in your Metrowerks folder. The first few lines look like

FEATURE Win32_CWIDE_Limited metrowks 5.5 permanent uncounted 2589EF7E8174 HOSTID=ANY

- # IDE: learning edition (max 32 files, no subprojects).
- # Build/Debug: Unlimited Assembly/Hex/S19. C code up to 12K. ELF/Dwarf object file format.

A) To open an existing Metrowerks project

1) Start Metrowerks CW12 3.0

2) Execute File->Open, navigate to an existing *.mcp file, and click "OK"

B) How to create a new Metrowerks project

1) Start Metrowerks CW12 3.0

 Execute File->New, click "Project" Tab select "HC(S)12 New Project Wizard" specify the "Project name" verify its "Location", click "OK"



3) Select the derivative you want to use "MC68HC812A4", click "next"



4) Choose the set of languages supported select "C", click "next"

Please choose the set of languages to be supported initially. You can make multiple selectors.
∏Accentely VIII □ C++
This will set up your application with a ANSI-C = compliant startup code (cloing initialisation of global variables).
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5) Do you want to create a setup for PC-lint select "no", click "next"





9) Create or copy program files *.c and *.h

place them into the "**Sources**" directory of your project

10) Copy TExaS files from a similar example into the "**Bin**" directory of your project. The Microcomputer file (*.**UC**) is always necessary. The Input/output file (*.**io**) is usually needed. The Oscilloscope file (*.**scp**) is optional and provides support for a scope or logic analyzer. The Plot file (*.**plt**) is optional and provides support stepper motor robot map.

It is best to copy TExaS files from another MW12 example, rename the files, and modify them to suit the needs of the project, rather than to create TExaS files from scratch.

11) Copy these files into the "**Bin**" directory of your project

Converter program **S19.exe**

Kevin Ross BDM B.Bat dll2.exe

12) Add the necessary C files to project

click on Sources in the "mcp" window

right click and execute "Add Files..."

"click dot on" in the field associated all C source files under the "bug" icon

6) Select the floating point format supported select "None", click "next"

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metrowerks		

8) Please choose the connections you want select "Metrowerks Full Chip simulator"



13) Change compiler/linker options

click the right-most toolbar ICON called "Simulator settings"

- click "Compiler for HC12" choice
- click "Options"
- click "Output" tab

select "Allocate CONST objects in ROM" and "Generate Listing File"

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C) How to simulate Metrowerks-generated code on TExaS Do this once 1) In TExaS, open the microcomputer file. E.g., "SCI12.UC" file For each edit/compile/run cycle 1) In Metrowerks, perform editing to source code 2) In Metrowerks, compile/Link Execute Project->Make 3) In TExaS, execute Action->OpenS19 select the **simulator.sx** S19 file in your "**Bin**" directory 4) In TExaS, Action->Run (F12) D) How to run Metrowerks on the Real Adapt812A4 board $\frac{1}{1} \frac{1}{1} \frac{1}$ pin 1 Run Boot RS485 R rese unregulated oin 1 power Og BDM TOP DB9 to PC MC68HC812A4 MAX232 COM1 \bigcirc PIC16 10 wire optional ADAPT812 DB9 to PC 6 wire Ο 1997(c) Techological Arts COM2 BDM Interface Copyright(c) Kevin Ros optional serial cable to COM2 Adapt reset **BDM** connector dapt812 power cable serial cable to COM1 **Kevin Ross BDM BDM** reset

Do this once

1) Connect PC-COM1 to Kevin Ross BDM, (mandatory)

Connect 6-wire Kevin Ross BDM cable to Adapt812A4 BDM, (mandatory) Notice the direction and orientation of the 6-wire Adapt connection in the figures Connect PC-COM2 to Adapt812A4, (needed if your software accesses SCI port) Connect power to Adapt812A4. (mandatory) The Kevin Ross BDM green light should be on (good). If the Kevin Ross BDM red error light is on (bad), quit Kevin Ross BDM software, turn off the power off to the BDM, check all cables, turn the power back on, and restart the BDM software.

2) Execute **B.BAT** (starts Kevin Ross BDM software)3) Execute **STATUS**, verify status is "C0"

For each edit/compile/run cycle

1) In Metrowerks, perform editing to source code

2) In Metrowerks, compile/Link

Execute Project->Make

3) Double click **S19.exe** (converts **simulator.sx** into **out.s19**)

strips off first line, which is a **s0** record that Kevin Ross BDM can't interpret

4) In Kevin Ross BDM, execute

load out.s19

5) Hit Adapt812A4 reset button

Kevin Ross BDM commands

b	break into background mode. This halts the 6812 execution
d	dump memory using last address and size
db 0800	dump a block of 8-bit memory bytes starting at hexadecimal 0x0800
db 0810 081F	dump 8-bit memory bytes from address 0x0810 to 0x081F
dw 0800	dump a block of 16-bit memory words starting at hexadecimal 0x0800
dw 0810 081E	dump 16-bit memory words from address 0x0810 to 0x081E
eb 0800 55	edit byte, change 8-bit memory byte at address 0x0800 to value 0x55
er a 56	edit register A, change register A to value 0x56
er b 78	edit register B, change register B to value 0x78
er cr 40	edit register CCR, change condition codes to value 0x40
er d 1234	edit register D, change register D to value 0x1234
er x 1234	edit register X, change register X to value 0x1234
er y 1234	edit register Y, change register Y to value 0x1234
er sp 0C00	edit register S, change stack pointer to value 0x0c00
er pc F000	edit register PC, change program counter to value 0xF000
ew 0800 1234	edit word, change 16-bit memory word at address 0x0800 to value 0x1234
firm	enable firmware commands
g F000	go, start execution at location 0xF000
help	help, list all BDM commands
load out.s19	erase EEPROM, download S19 files, burn into EEPROM
quit	quit the Kevin Ross BDM software
r	registers, display 6812 registers (6812 must be stopped)
reset	reset 6812 into special mode
status	display 6812 status register, should be C0
t	trace, execute one instruction