

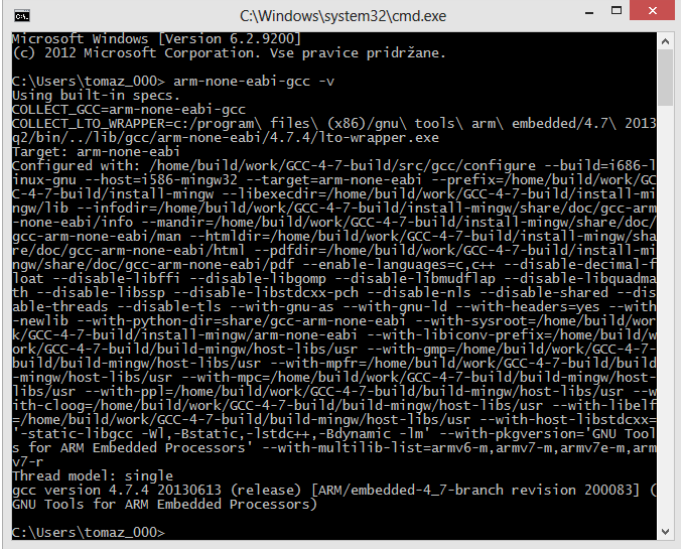
Nastavitev razvojnega orodja eclipse za STM32F4 discovery

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1 Nastavitev GCC ARM Toolchain

- Naložimo in namestimo gcc-arm toolchain z zagonom .exe datoteke.
- Toolchain najdemo na naslovu <https://launchpad.net/gcc-arm-embedded>.
- Pri namestitvi moramo obkljukati *Add path to enviroment variable*.
- Pravilno namestitev lahko preverimo z odpretjem nove ukazne vrstice (cmd) in vpišemo *arm-none-eabi-gcc -v*.
- Kot izpis dobimo nekaj takega:



```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.2.9200]
(c) 2012 Microsoft Corporation. Vse pravice pridržane.

C:\Users\tomaz_000> arm-none-eabi-gcc -v
Using built-in specs.
COLLECT_GCC=arm-none-eabi-gcc
COLLECT_LTO_WRAPPER=c:/program files/x86/gnu/tools/arm/embedded/4.7\20130622/bin/./lib/gcc/arm-none-eabi/4.7.4/lto-wrapper.exe
Target: arm-none-eabi
Configured with: /home/build/work/GCC-4-7-build/src/gcc/configure --build=i686-linux-gnu --host=i686-mingw32 --target=arm-none-eabi --prefix=/home/build/work/GCC-4-7-build/install-mingw --libexecdir=/home/build/work/GCC-4-7-build/install-mingw/lib --infodir=/home/build/work/GCC-4-7-build/install-mingw/share/doc/gcc-arm-none-eabi/info --mandir=/home/build/work/GCC-4-7-build/install-mingw/share/doc/gcc-arm-none-eabi/man --htmldir=/home/build/work/GCC-4-7-build/install-mingw/share/doc/gcc-arm-none-eabi/html --pdfdir=/home/build/work/GCC-4-7-build/install-mingw/share/doc/gcc-arm-none-eabi/pdf --enable-languages=c,c++ --disable-decimal-float --disable-libffi --disable-libgomp --disable-libmudflap --disable-libquadmath --disable-libssp --disable-libstdc++-pch --disable-nls --disable-shared --disable-threads --disable-tls --with-gnu-as --with-gnu-ld --with-headers=yes --with-newlib --with-python-dir=share/gcc-arm-none-eabi --with-sysroot=/home/build/work/GCC-4-7-build/install-mingw/arm-none-eabi --with-libiconv-prefix=/home/build/work/GCC-4-7-build/build-mingw/host-libs/usr --with-gmp=/home/build/work/GCC-4-7-build/build-mingw/host-libs/usr --with-mpfr=/home/build/work/GCC-4-7-build/build-mingw/host-libs/usr --with-mpc=/home/build/work/GCC-4-7-build/build-mingw/host-libs/usr --with-ppc=/home/build/work/GCC-4-7-build/build-mingw/host-libs/usr --with-cloog=/home/build/work/GCC-4-7-build/build-mingw/host-libs/usr --with-libelf=/home/build/work/GCC-4-7-build/build-mingw/host-libs/usr --with-host-libstdcxx=-static-libgcc -Wl,-Bstatic,-lstdc++,-ldynamic -lm --with-pkgversion='GNU Tools for ARM Embedded Processors' --with-multilib-list=armv6-m,armv7-m,armv7e-m,armv7-r
Thread model: single
gcc version 4.7.4 20130613 (release) [ARM/embedded-4_7-branch revision 200083] (GNU Tools for ARM Embedded Processors)

C:\Users\tomaz_000>
```

2 Nastavitev eclipse IDE

1. Importamo že obstoječi projekt
2. Kliknemo na help -> install new software -> vpišemo *CDT* - <http://download.eclipse.org/tools/cdt/releases/helios> (odvisno od verzije eclipse) -> obkljukamo CDT main features in CDT optional features in kliknemo next.
3. restartamo eclipse po namestitvi
4. Desni klik na projekt -> properties -> C/C++ build
 - nastavimo Configuration na Debug
 - Builder type na Internal builder

Izberemo Discovery options: (za helios verzijo)

- za Discovery profile scope izberemo Configuration-wide
- pod Compiler invocation command vpišemo *arm-none-eabi-gcc*

Izberemo Environment options:

- se prepričamo da imamo pod PATH lastno pod s klikom na PATH -> edit -> variables -> PATH
- pod Compiler invocation command vpišemo *arm-none-eabi-gcc*

Izberemo Settings:

- kliknemo na Cross Settings in za prefix vpišemo *arm-none-eabi-*
- za path izberemo npr. *C:\Program Files (x86)\GNU Tools ARM Embedded\4.7 2013q2\bin*

Izberemo Tool Chain Editor:

- Za Current toolchain izberemo Cross GCC
- Za Current builder izberemo CDT Internal Builder
- Če v Used tools nimamo GCC Assembler kliknemo na Select tools., izberemo GCC Assembler in nato Add tool ->

5. iz menija izberemo Project -> Build Project. V konzolo se mora izpisati:

```
... Build complete for project STM32F4-FreeRTOS
Time consumed: 4350 ms. ali
Build Finished (took xxs.xms)
```

6. iz menija izberemo Run -> Debug Configurations.

- Na levi strani okna dvokliknemo na GDB Hardware Debugging in mu damo npr. ime *STM32F4-FreeRTOS Debug*
- Pod Main zavihkom kliknemo na Search Project in izberemo naš zbuildan projekt
- Izberemo zavihhek Debugger in v GDB Command vpišemo pot *C:\Program Files (x86)\GNU Tools ARM Embedded\4.6 2012q4\bin\arm-none-eabi-gdb.exe*

- Izberemo Use remote target
- v Host name vpišemo localhost
- v Port number vpišemo 3333
- Kliknemo na link Select other...
- Kliknemo na link Select Change Workspace Settings...
- Izberemo GDB Hardware Debugging -> Debug in na desni strani okna obkljukamo *Standard GDB Hardware Debugging Luncher*
- Kliknemo na Apply
- Izberemo zavihek Startup
- obkljukamo halt in v vnostno polje vpišemo *monitor reset halt*
- Kliknemo na Apply

3 OpenOCD

1. Namestitev ST LINK driverjev

- Naložimo zadig iz <http://sourceforge.net/projects/libwdi/files/zadig/>
- Povežemo STM na računalnik
- Kliknemo Options v meniju in izberemo List All Devices
- izberemo STM32 STLink
- izberemo WinUSB iz spodnjega menija in pritisnemo Upgrade Drivers

2. Namestitev OpenOCD

- Naložimo OpenOCD iz <http://www.freddiechopin.info/en/download/category/4-openocd>
- Odzipamo OpenOCD na izbrano mesto, npr. C:\openocd-0.6.1\
- Dodamo OpenOCD v PATH, npr. ;C:\openocd-0.6.1\bin-x64 če imamo 64 bitne windowse
- Kopiramo datoteko *stm32f4discovery.cfg* iz OpenOCD direktorija, npr C:\openocd-0.6.1\scripts\board\stm32f4discovery.cfg v eclipse projekt, npr C:\workspace\mojprojekt\stm3f4discovery.cfg

- S konzolo se pomaknemo v projekt in poženemo server z ukazom
openocd-x64-0.6.1 -f stm32f4discovery.cfg
- V konzolo se izpiše
Info : stm32f4x.cpu: hardware has 6 breakpoints, 4 watchpoints

4 Debug

Ko smo prepričani da openocd server teče v konzoli odpremo nazaj eclipse in:

- kliknemo na puščico pri hrošču
- Iz izvlečnega menija izberemo *STM32F4-FreeRTOS Debug*
- Ob metodi main se debug ustavi in moramo pritisniti f8 za nadaljevanje

5 Verzije

Preverjeno na:

- Windows 8 64bit
- openocd-x64-0.6.1, openocd-x64-0.7.0
- eclipse C/C++ Helios, Kepler
- gcc toolchain 4.7-2013q2
- zadig 2.0.1.160