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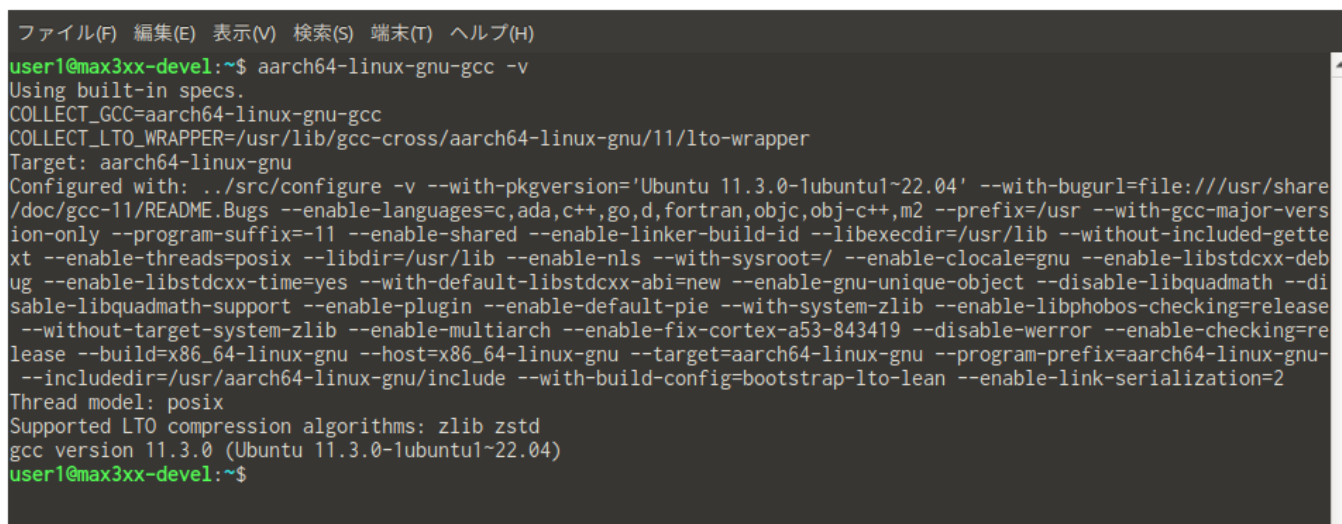
開発環境のセットアップ(クロスarm64 用)

Ubuntu Linuxにはarm64(aarch64)用のクロス開発ツールのパッケージが用意されていますので、それをセットアップします。

```
user1@max3xx-devel:~$ sudo apt install crossbuild-essential-arm64
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  binutils-aarch64-linux-gnu cpp-11-aarch64-linux-gnu cpp-aarch64-linux-gnu
  cross-config dpkg-cross file
  g++-11-aarch64-linux-gnu g++-aarch64-linux-gnu gcc-11-aarch64-linux-gnu
  gcc-11-aarch64-linux-gnu-base
  gcc-11-cross-base gcc-12-cross-base gcc-aarch64-linux-gnu libasan6-arm64-
  cross libatomic1-arm64-cross
  libauthen-sasl-perl libc6-arm64-cross libc6-dev-arm64-cross libclone-perl
  libconfig-auto-perl
  libconfig-inifiles-perl libdata-dump-perl libdebian-dpkgcross-perl
  libencode-locale-perl libfile-homedir-perl
  libfile-listing-perl libfile-which-perl libfont-afm-perl libgcc-11-dev-
  arm64-cross libgcc-s1-arm64-cross
  libgomp1-arm64-cross libhtml-form-perl libhtml-format-perl libhtml-parser-
  perl libhtml-tagset-perl
  libhtml-tree-perl libhttp-cookies-perl libhttp-daemon-perl libhttp-date-
  perl libhttp-message-perl
  libhttp-negotiate-perl libhwasan0-arm64-cross libio-html-perl libio-
  socket-ssl-perl libio-string-perl
  libitm1-arm64-cross liblsan0-arm64-cross liblwp-mediatypes-perl liblwp-
  protocol-https-perl libmagic-mgc libmagic1
  libmailtools-perl libnet-http-perl libnet-smtp-ssl-perl libnet-ssleay-perl
  libstdc++-11-dev-arm64-cross
  libstdc++6-arm64-cross libtimedate-perl libtry-tiny-perl libtsan0-arm64-
  cross libubsan1-arm64-cross liburi-perl
  libwww-perl libwww-robotrules-perl libxml-libxml-perl libxml-
  namespacesupport-perl libxml-parser-perl
  libxml-sax-base-perl libxml-sax-expat-perl libxml-sax-perl libxml-simple-
  perl libyaml-libyaml-perl libyaml-perl
  linux-libc-dev-arm64-cross perl-openssl-defaults
Suggested packages:
  binutils-doc gcc-11-locales cpp-doc binutils-multiarch gcc-11-doc autoconf
  automake libtool flex bison
  gdb-aarch64-linux-gnu gcc-doc libdigest-hmac-perl libgssapi-perl libcrypt-
  ssleay-perl libsub-name-perl
  libbusiness-isbn-perl libauthen-ntlm-perl libxml-sax-expatxs-perl libyaml-
  shell-perl
The following NEW packages will be installed:
  binutils-aarch64-linux-gnu cpp-11-aarch64-linux-gnu cpp-aarch64-linux-gnu
  cross-config crossbuild-essential-arm64
```

```
dpkg-cross file g++-11-aarch64-linux-gnu g++-aarch64-linux-gnu gcc-11-
aarch64-linux-gnu
gcc-11-aarch64-linux-gnu-base gcc-11-cross-base gcc-12-cross-base gcc-
aarch64-linux-gnu libasan6-arm64-cross
libatomic1-arm64-cross libauthen-sasl-perl libc6-arm64-cross libc6-dev-
arm64-cross libclone-perl
libconfig-auto-perl libconfig-inifiles-perl libdata-dump-perl libdebian-
dpkgcross-perl libencode-locale-perl
libfile-homedir-perl libfile-listing-perl libfile-which-perl libfont-afm-
perl libgcc-11-dev-arm64-cross
libgcc-s1-arm64-cross libgomp1-arm64-cross libhtml-form-perl libhtml-
format-perl libhtml-parser-perl
libhtml-tagset-perl libhtml-tree-perl libhttp-cookies-perl libhttp-daemon-
perl libhttp-date-perl
libhttp-message-perl libhttp-negotiate-perl libhwasa0-arm64-cross libio-
html-perl libio-socket-ssl-perl
libio-string-perl libitm1-arm64-cross liblsan0-arm64-cross liblwp-
mediatypes-perl liblwp-protocol-https-perl
libmagic-mgc libmagic1 libmailtools-perl libnet-http-perl libnet-smtp-ssl-
perl libnet-ssleay-perl
libstdc++-11-dev-arm64-cross libstdc++6-arm64-cross libtimedate-perl
libtry-tiny-perl libtsan0-arm64-cross
libubsan1-arm64-cross liburi-perl libwww-perl libwww-robotrules-perl
libxml-libxml-perl
libxml-namespacesupport-perl libxml-parser-perl libxml-sax-base-perl
libxml-sax-expat-perl libxml-sax-perl
libxml-simple-perl libyaml-libyaml-perl libyaml-perl linux-libc-dev-arm64-
cross perl-openssl-defaults
0 upgraded, 76 newly installed, 0 to remove and 0 not upgraded.
Need to get 61.0 MB of archives.
After this operation, 222 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

ARM64 用 GCC の起動を確認してみます。



```
ファイル(F) 編集(E) 表示(V) 検索(S) 端末(T) ヘルプ(H)
user1@max3xx-devel:~$ aarch64-linux-gnu-gcc -v
Using built-in specs.
COLLECT_GCC=aarch64-linux-gnu-gcc
COLLECT_LTO_WRAPPER=/usr/lib/gcc-cross/aarch64-linux-gnu/11/lto-wrapper
Target: aarch64-linux-gnu
Configured with: ../src/configure -v --with-pkgversion='Ubuntu 11.3.0-1ubuntu1~22.04' --with-bugurl=file:///usr/share
/doc/gcc-11/README.Bugs --enable-languages=c,ada,c++,go,d,fortran,objc,obj-c++,m2 --prefix=/usr --with-gcc-major-vers
ion-only --program-suffix=-11 --enable-shared --enable-linker-build-id --libexecdir=/usr/lib --without-included-gette
xt --enable-threads=posix --libdir=/usr/lib --enable-nls --with-sysroot=/ --enable-clocale=gnu --enable-libstdcxx-deb
ug --enable-libstdcxx-time=yes --with-default-libstdcxx-abi=new --enable-gnu-unique-object --disable-libquadmath --di
sable-libquadmath-support --enable-plugin --enable-default-pie --with-system-zlib --enable-libphobos-checking=release
--without-target-system-zlib --enable-multiarch --enable-fix-cortex-a53-843419 --disable-werror --enable-checking=re
lease --build=x86_64-linux-gnu --host=x86_64-linux-gnu --target=aarch64-linux-gnu --program-prefix=aarch64-linux-gnu-
--includedir=/usr/aarch64-linux-gnu/include --with-build-config=bootstrap-lto-lean --enable-link-serialization=2
Thread model: posix
Supported LTO compression algorithms: zlib zstd
gcc version 11.3.0 (Ubuntu 11.3.0-1ubuntu1~22.04)
user1@max3xx-devel:~$
```

From:

<https://ma-tech.centurysys.jp/> - MA-X/MA-S/MA-E/IP-K Developers' Wiki

Permanent link:

https://ma-tech.centurysys.jp/doku.php?id=max3xx_devel:setup_crossdev:start

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