■ Ubuntu on Trenz TE0802

こんな感じでビルド https://github.com/miyo/build_linux_te8020
動いたので，UnixBench と STREAM で簡単に性能測定.

UnixBench は,

```
------------------------------------------------------------------------
Benchmark Run: Sun Jan 28 2018 16:58:27 - 17:26:30
2 CPUs in system; running 1 parallel copy of tests

Dhrystone 2 using register variables       6368093.6 lps   (10.0 s, 7 samples)
Double-Precision Whetstone                    1156.5 MWIPS (9.8 s, 7 samples)
Execl Throughput                              1550.0 lps   (29.9 s, 2 samples)
File Copy 1024 bufsize 2000 maxblocks       130860.5 KBps  (30.0 s, 2 samples)
File Copy 256 bufsize 500 maxblocks          47744.1 KBps  (30.0 s, 2 samples)
File Copy 4096 bufsize 8000 maxblocks       236150.0 KBps  (30.0 s, 2 samples)
Pipe Throughput                             411918.1 lps   (10.0 s, 7 samples)
Pipe-based Context Switching                 76329.0 lps   (10.0 s, 7 samples)
Process Creation                              3657.7 lps   (30.0 s, 2 samples)
Shell Scripts (1 concurrent)                  2007.3 lpm   (60.0 s, 2 samples)
Shell Scripts (8 concurrent)                   352.7 lpm   (60.1 s, 2 samples)
System Call Overhead                        606407.4 lps   (10.0 s, 7 samples)

System Benchmarks Index Values               BASELINE       RESULT    INDEX
Dhrystone 2 using register variables         116700.0    6368093.6    545.7
Double-Precision Whetstone                       55.0       1156.5    210.3
Execl Throughput                                 43.0       1550.0    360.5
File Copy 1024 bufsize 2000 maxblocks          3960.0     130860.5    330.5
File Copy 256 bufsize 500 maxblocks            1655.0      47744.1    288.5
File Copy 4096 bufsize 8000 maxblocks          5800.0     236150.0    407.2
Pipe Throughput                               12440.0     411918.1    331.1
Pipe-based Context Switching                   4000.0      76329.0    190.8
Process Creation                                126.0       3657.7    290.3
Shell Scripts (1 concurrent)                     42.4       2007.3    473.4
Shell Scripts (8 concurrent)                      6.0        352.7    587.8
System Call Overhead                          15000.0     606407.4    404.3
                                                                   ========
System Benchmarks Index Score                                         349.4

------------------------------------------------------------------------
Benchmark Run: Sun Jan 28 2018 17:26:30 - 17:54:34
2 CPUs in system; running 2 parallel copies of tests

Dhrystone 2 using register variables      12736019.1 lps   (10.0 s, 7 samples)
Double-Precision Whetstone                    2313.3 MWIPS (9.8 s, 7 samples)
Execl Throughput                              2942.4 lps   (29.8 s, 2 samples)
File Copy 1024 bufsize 2000 maxblocks       249350.5 KBps  (30.0 s, 2 samples)
File Copy 256 bufsize 500 maxblocks          88072.8 KBps  (30.0 s, 2 samples)
File Copy 4096 bufsize 8000 maxblocks       466083.0 KBps  (30.0 s, 2 samples)
Pipe Throughput                             815794.7 lps   (10.0 s, 7 samples)
Pipe-based Context Switching                151154.1 lps   (10.0 s, 7 samples)
Process Creation                              6492.2 lps   (30.0 s, 2 samples)
Shell Scripts (1 concurrent)                  2801.4 lpm   (60.0 s, 2 samples)
Shell Scripts (8 concurrent)                   344.1 lpm   (60.3 s, 2 samples)
System Call Overhead                       1170907.7 lps   (10.0 s, 7 samples)

System Benchmarks Index Values               BASELINE       RESULT    INDEX
Dhrystone 2 using register variables         116700.0   12736019.1   1091.3
Double-Precision Whetstone                       55.0       2313.3    420.6
Execl Throughput                                 43.0       2942.4    684.3
File Copy 1024 bufsize 2000 maxblocks          3960.0     249350.5    629.7
File Copy 256 bufsize 500 maxblocks            1655.0      88072.8    532.2
File Copy 4096 bufsize 8000 maxblocks          5800.0     466083.0    803.6
Pipe Throughput                               12440.0     815794.7    655.8
Pipe-based Context Switching                   4000.0     151154.1    377.9
Process Creation                                126.0       6492.2    515.3
Shell Scripts (1 concurrent)                     42.4       2801.4    660.7
Shell Scripts (8 concurrent)                      6.0        344.1    573.4
System Call Overhead                          15000.0    1170907.7    780.6
                                                                   ========
System Benchmarks Index Score                                         619.5
```

STREAM は,

```
user@qdev:~/STREAM-master$ ./stream
-------------------------------------------------------------
STREAM version $Revision: 5.10 $
-------------------------------------------------------------
This system uses 8 bytes per array element.
-------------------------------------------------------------
Array size = 20000000 (elements), Offset = 0 (elements)
Memory per array = 152.6 MiB (= 0.1 GiB).
Total memory required = 457.8 MiB (= 0.4 GiB).
Each kernel will be executed 10 times.
 The *best* time for each kernel (excluding the first iteration)
 will be used to compute the reported bandwidth.
-------------------------------------------------------------
Number of Threads requested = 2
Number of Threads counted = 2
-------------------------------------------------------------
Your clock granularity/precision appears to be 1 microseconds.
Each test below will take on the order of 293097 microseconds.
   (= 293097 clock ticks)
Increase the size of the arrays if this shows that
you are not getting at least 20 clock ticks per test.
-------------------------------------------------------------
WARNING -- The above is only a rough guideline.
For best results, please be sure you know the
precision of your system timer.
-------------------------------------------------------------
Function    Best Rate MB/s  Avg time     Min time     Max time
Copy:            1385.3     0.232937     0.230991     0.234820
Scale:           1369.7     0.235670     0.233622     0.237338
Add:             1234.7     0.390185     0.388745     0.392157
Triad:           1181.9     0.412305     0.406122     0.419152
-------------------------------------------------------------
Solution Validates: avg error less than 1.000000e-13 on all three arrays
-------------------------------------------------------------
user@qdev:~/STREAM-master$ OMP_NUM_THREADS=1 ./stream
-------------------------------------------------------------
STREAM version $Revision: 5.10 $
-------------------------------------------------------------
This system uses 8 bytes per array element.
-------------------------------------------------------------
Array size = 20000000 (elements), Offset = 0 (elements)
Memory per array = 152.6 MiB (= 0.1 GiB).
Total memory required = 457.8 MiB (= 0.4 GiB).
Each kernel will be executed 10 times.
 The *best* time for each kernel (excluding the first iteration)
 will be used to compute the reported bandwidth.
-------------------------------------------------------------
Number of Threads requested = 1
Number of Threads counted = 1
-------------------------------------------------------------
Your clock granularity/precision appears to be 1 microseconds.
Each test below will take on the order of 439203 microseconds.
   (= 439203 clock ticks)
Increase the size of the arrays if this shows that
you are not getting at least 20 clock ticks per test.
-------------------------------------------------------------
WARNING -- The above is only a rough guideline.
For best results, please be sure you know the
precision of your system timer.
-------------------------------------------------------------
Function    Best Rate MB/s  Avg time     Min time     Max time
Copy:            1149.0     0.280370     0.278513     0.283598
Scale:           1144.7     0.282159     0.279549     0.285550
Add:              958.7     0.501143     0.500660     0.501841
Triad:            938.1     0.512350     0.511683     0.513597
-------------------------------------------------------------
Solution Validates: avg error less than 1.000000e-13 on all three arrays
-------------------------------------------------------------
```

■ FreeBSD

久しぶりに FreeBSD のセットアップ．実マシンじゃなくて Windows 上の VM に．

バージョンは 12.2-RELEASE.

生活環境として pkg install で emacs，Xorg, tightvnc，tgif，samba413，ja-font-migmix などをインストール.

開発環境としては gcc，ruby，jdk などをインストール.

samba の設定は /usr/local/etc/smb4.conf.
とりあえず，こんな感じに

```
[global]
workgroup = WORKGROUP
server string = FreeBSD
security = user
hosts allow = 192.168.
guest ok = no
unix charset = UTF-8
dos charset = CP932
max protocol = SMB2
netbios name = microserver
create mask = 644
force create mode = 644
directory mask = 775
force directory mode = 775
printing = bsd
unix extensions = no
nt acl support = yes
inherit acls = no
map acl inherit = yes
map archive = no
domain master = no
local master = no
preferred master = no
os level = 0
oplocks = No
level2 oplocks = No

[homes]
comment = Home Directories
writable = yes
browseable = yes
write list = wizard
guest ok = no
read only = no
```

実行は，

```
/usr/local/etc/rc.d/samba_server onestart
```

とか．次回以降は自動起動したいので，/etc/rc.conf に

```
samba_server_enable="YES"
winbindd_enable="YES"
```

と書いておく．