QuickTransit for Solaris/SPARC-to-Linux/Itanium

動作検証報告書

株式会社ネットワールド
システム基盤技術部
プラットフォームソリューショングループ
丸山 真一

2008 年 2 月 29 日に実施した、PRIMEQUEST580 上での「QuickTransit for Solaris/SPARC -to-Linux/Itanium」の動作検証結果を報告いたします。

○ 概要

- 実施日　：2008/2/29
- 場所　　：世界貿易センタービル 29F (Validation room 04-A)
- 作業者　：丸山 真一
- 目的　　：PRIMEQUEST580 上での QuickTransit の動作検証
- ソフト　：QuickTransit for Solaris/SPARC-to-Linux/Itanium Version 1.1

○ 環境

- H/W　　：PRIMEQUEST580 × 2 partition
  - ✧ Partition #0
    - CPU　：Dual Itanium2 9050 1.60GHz × 4
    - Memory：8GB
    - HDD　：73GB (SCSI, 10Krpm)× 3
    - NIC　：1000BASE-T
    - OS　　：Red Hat Enterprise Linux AS (v.4 updater 5 for Itanium)
      (以下、RHEL AS4.5 とする)
  - ✧ Partition #1
    - CPU　：Dual Itanium2 9050 1.60GHz × 4
    - Memory：8GB
    - HDD　：73GB (SCSI, 10Krpm)× 3
    - NIC　：1000BASE-T
    - OS　　：Red Hat Enterprise Linux AS (v.5 for Itanium)
      (以下、RHEL AS5 とする)

○ 検証項目(Partition #0 及び Partition #1 で同じ内容を実施)

① QuickTransit for Solaris/SPARC-to-Linux/Itanium のインストール
② 仮想 Solairs 環境への Apache のインストール及び実行
③ 仮想 Solairs 環境への MySQL のインストール及び実行
④ 仮想 Solairs 環境への UNIX Bench のインストール及び実行

① QuickTransit for Solaris/SPARC-to-Linux/Itanium のインストール

- 検証内容 及び 結果
  - QuickTransit for Solaris/SPARC-to-Linux/Itanium Version 1.1 のインストールを実施
  - RHEL AS4.5 及び RHEL AS5 共に問題無くインストール完了
  - RHEL AS4.5 及び RHEL AS5 共に QuickTransit サービスの起動を確認
  - RHEL AS4.5 及び RHEL AS5 共に仮想 Solaris 環境の起動を確認
  - RHEL AS4.5 及び RHEL AS5 共に仮想 Solaris 環境付属のアプリケーションが動作する事を確認。(bash, xeyes, xcalc, xclock)

② 仮想 Solaris 環境への Apache2.0.59 のインストール及び実行

- 検証内容 及び 結果
  - Apache2.0.59 のインストール及び Apache Bench の実行(モジュールは http://www.sunfreeware.com/からダウンロード)
  - RHEL AS4.5 及び RHEL AS5 共に問題無くインストール完了
  - Apache Bench 問題なく実行できる事を確認
    - Complete requests: 100000
    - Failed requests: 0
- Apache Bench の RHEL AS4.5 での実行結果

```
bash-3.00# ./ab -n 100000 -c 1000 http://192.168.10.11/
This is ApacheBench, Version 2.0.41-dev <$Revision: 1.121.2.12 $> apache-2.0
Copyright (c) 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Copyright (c) 2006 The Apache Software Foundation, http://www.apache.org/

Benchmarking 192.168.10.11 (be patient)
Completed 10000 requests
Completed 20000 requests
Completed 30000 requests
Completed 40000 requests
Completed 50000 requests
Completed 60000 requests
Completed 70000 requests
Completed 80000 requests
Completed 90000 requests
Finished 100000 requests


Server Software:        Apache/2.0.59
Server Hostname:        192.168.10.11
Server Port:            80
```

```
Document Path:          /
Document Length:        1456 bytes

Concurrency Level:      1000
Time taken for tests:   99.978451 seconds
Complete requests:      100000
Failed requests:        0
Write errors:           0
Total transferred:      188715096 bytes
HTML transferred:       145611648 bytes
Requests per second:    1000.22 [#/sec] (mean)
Time per request:       999.785 [ms] (mean)
Time per request:       1.000 [ms] (mean, across all concurrent requests)
Transfer rate:          1843.32 [Kbytes/sec] received

Connection Times (ms)
              min   mean[+/-sd] median   max
Connect:        0  685 4309.0      1   93003
Processing:    79  196 881.9      128   52020
Waiting:       76  191 872.3      126   52019
Total:         82  882 4569.6     132   99775

Percentage of the requests served within a certain time (ms)
  50%    132
  66%    149
  75%    163
  80%    173
  90%    717
  95%   3139
  98%   9125
  99%   15467
 100%   99775 (longest request)
bash-3.00#
```

- Apache Bench の RHEL AS4.5 での実行結果

```
bash-3.00# ./ab -n 100000 -c 1000 http://192.168.10.12/
This is ApacheBench, Version 2.0.41-dev <$Revision: 1.121.2.12 $> apache-2.0
Copyright (c) 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Copyright (c) 2006 The Apache Software Foundation, http://www.apache.org/

Benchmarking 192.168.10.12 (be patient)
Completed 10000 requests
Completed 20000 requests
Completed 30000 requests
Completed 40000 requests
Completed 50000 requests
Completed 60000 requests
Completed 70000 requests
Completed 80000 requests
```

```
Completed 90000 requests
Finished 100000 requests

Server Software:        Apache/2.0.59
Server Hostname:        192.168.10.12
Server Port:            80

Document Path:          /
Document Length:        1456 bytes

Concurrency Level:      1000
Time taken for tests:   88.398947 seconds
Complete requests:      100000
Failed requests:        0
Write errors:           0
Total transferred:      188945310 bytes
HTML transferred:       145789280 bytes
Requests per second:    1131.24 [#/sec] (mean)
Time per request:       883.990 [ms] (mean)
Time per request:       0.884 [ms] (mean, across all concurrent requests)
Transfer rate:          2087.31 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        0  544 2705.4      1   45002
Processing:    40  234 742.5      115   30176
Waiting:       24  137 425.0      114   26068
Total:         53  778 2892.3     118   71070

Percentage of the requests served within a certain time (ms)
  50%    118
  66%    126
  75%    135
  80%    144
  90%   3109
  95%   3310
  98%   9112
  99%   9175
 100%  71070 (longest request)
bash-3.00#
```

③ 仮想 Solairs 環境への MySQL のインストール及び実行

- 検証内容 及び 結果
  - MySQL 5.0.51 をインストール → 成功
  - サービスの起動確認 → 成功
  - Insert, Update, Delete 文の SQL を発行 → 成功

- RHEL AS4.5 での実行結果

```
[root@pq582-0 ~]# uname -a
Linux pq582-0 2.6.9-55.EL #1 SMP Wed Jun 6 10:35:27 JST 2007 ia64 ia64 ia64 GNU/Linux
[root@pq582-0 ~]# runsparc
-bash-3.00# su - mysql
-bash-3.00$
-bash-3.00$ ./mysqld_safe --default-character-set=utf8 &
[1] 20876
-bash-3.00$ Starting mysqld daemon with databases from /usr/local/mysql/var

-bash-3.00$ mysqladmin -u root create mytestdb
-bash-3.00$ mysqlshow
+--------------------+
|      Databases     |
+--------------------+
| information_schema |
| mysql              |
| mytestdb           |
| test               |
+--------------------+
-bash-3.00$ mysql -u root mytestdb
Welcome to the MySQL monitor.  Commands end with ; or ¥g.
Your MySQL connection id is 3
Server version: 5.0.51 Source distribution

Type 'help;' or '¥h' for help. Type '¥c' to clear the buffer.

mysql> status;
--------------
mysql  Ver 14.12 Distrib 5.0.51, for sun-solaris2.10 (sparc) using  EditLine wrapper

Connection id:          4
Current database:       mytestdb
Current user:           root@localhost
SSL:                    Not in use
Current pager:          stdout
Using outfile:          ''
Using delimiter:        ;
Server version:         5.0.51 Source distribution
Protocol version:       10
Connection:             Localhost via UNIX socket
Server characterset:    utf8
Db      characterset:   utf8
Client characterset:    latin1
Conn.   characterset:   latin1
UNIX socket:            /tmp/mysql.sock
Uptime:                 16 min 25 sec

Threads: 1  Questions: 27  Slow queries: 0  Opens: 14  Flush tables: 1  Open tables: 7  Queries per second avg: 0.027
--------------
```

```
mysql> CREATE TABLE MY_TEST_TABLE (
    -> NO INTEGER NOT NULL,
    -> NAME VARCHAR(50),
    -> MESSAGE VARCHAR(100),
    -> PRIMARY KEY(NO)
    -> ) CHARACTER SET utf8;
Query OK, 0 rows affected (0.07 sec)

mysql> show tables
    -> ;
+-------------------+
| Tables_in_mytestdb |
+-------------------+
| MY_TEST_TABLE      |
+-------------------+
1 row in set (0.03 sec)

mysql> quit
Bye
-bash-3.00$ export LANG=ja_JP.UTF-8
-bash-3.00$ mysql -u root mytestdb
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Welcome to the MySQL monitor.  Commands end with ; or ¥g.
Your MySQL connection id is 4
Server version: 5.0.51 Source distribution

Type 'help;' or '¥h' for help. Type '¥c' to clear the buffer.

mysql> show tables;
+-------------------+
| Tables_in_mytestdb |
+-------------------+
| MY_TEST_TABLE      |
+-------------------+
1 row in set (0.02 sec)

mysql> INSERT INTO MY_TEST_TABLE VALUE ( 1 , 'Test1' , 'Thisi is Test!!');
Query OK, 1 row affected (0.02 sec)

mysql> SELECT * FROM MY_TEST_TABLE;
+----+-------+----------------+
| NO | NAME  | MESSAGE        |
+----+-------+----------------+
|  1 | Test1 | Thisi is Test!! |
+----+-------+----------------+
1 row in set (0.03 sec)

mysql>
```

```
mysql> UPDATE MY_TEST_TABLE SET NAME='Networld', MESSAGE='QuickTransit
Test!' WHERE MY_TEST_TABLE.NO=1;
Query OK, 1 row affected (0.02 sec)
Rows matched: 1    Changed: 1    Warnings: 0

mysql> SELECT * FROM MY_TEST_TABLE;
+----+----------+-------------------+
| NO | NAME     | MESSAGE           |
+----+----------+-------------------+
|  1 | Networld | QuickTransit Test! |
+----+----------+-------------------+
1 row in set (0.01 sec)

mysql>
mysql> INSERT INTO MY_TEST_TABLE VALUE ( 2 , 'Test2' , 'Thisi is Test2!!');
Query OK, 1 row affected (0.01 sec)

mysql> SELECT * FROM MY_TEST_TABLE;
+----+----------+-------------------+
| NO | NAME     | MESSAGE           |
+----+----------+-------------------+
|  1 | Networld | QuickTransit Test! |
|  2 | Test2    | Thisi is Test2!!  |
+----+----------+-------------------+
2 rows in set (0.02 sec)

mysql> DELETE FROM MY_TEST_TABLE WHERE MY_TEST_TABLE.NO=2;
Query OK, 1 row affected (0.01 sec)

mysql> SELECT * FROM MY_TEST_TABLE;
+----+----------+-------------------+
| NO | NAME     | MESSAGE           |
+----+----------+-------------------+
|  1 | Networld | QuickTransit Test! |
+----+----------+-------------------+
1 row in set (0.01 sec)

mysql>
```

- RHEL AS5 での実行結果

```
-bash-3.00$ ./mysqld_safe --default-character-set=utf8 &
[1] 23599
-bash-3.00$ Starting mysqld daemon with databases from /usr/local/mysql/var

-bash-3.00$ mysqlshow
+--------------------+
|      Databases     |
+--------------------+
| information_schema |
| mysql              |
| test               |
+--------------------+
-bash-3.00$ pwd
/usr/local/mysql/bin
-bash-3.00$ mysqladmin -u root create mytestdb
-bash-3.00$ mysqlshow
+--------------------+
|      Databases     |
+--------------------+
| information_schema |
| mysql              |
| mytestdb           |
| test               |
+--------------------+
-bash-3.00$ mysql -u root mytestdb
Welcome to the MySQL monitor.  Commands end with ; or ¥g.
Your MySQL connection id is 4
Server version: 5.0.51 Source distribution

Type 'help;' or '¥h' for help. Type '¥c' to clear the buffer.

mysql> status
--------------
mysql  Ver 14.12 Distrib 5.0.51, for sun-solaris2.10 (sparc) using  EditLine wrapper

Connection id:          4
Current database:       mytestdb
Current user:           root@localhost
SSL:                    Not in use
Current pager:          stdout
Using outfile:          ''
Using delimiter:        ;
Server version:         5.0.51 Source distribution
Protocol version:       10 Connection:          Localhost via UNIX socket
Server characterset:    utf8
Db      characterset:   utf8
Client characterset:    latin1
Conn.   characterset:   latin1
UNIX socket:            /tmp/mysql.sock
Uptime:                 1 min 18 sec
```

```
Threads: 1  Questions: 12  Slow queries: 0  Opens: 12  Flush tables: 1  Open tables: 6  Queries per second avg: 0.154
--------------

mysql> CREATE TABLE MY_TEST_TABLE (
    -> NO INTEGER NOT NULL,
    -> NAME VARCHAR(50),
    -> MESSAGE VARCHAR(100),
    -> PRIMARY KEY(NO)
    -> ) CHARACTER SET utf8;
Query OK, 0 rows affected (0.07 sec)

mysql> show tables;
+-------------------+
| Tables_in_mytestdb |
+-------------------+
| MY_TEST_TABLE      |
+-------------------+
1 row in set (0.02 sec)

mysql> INSERT INTO MY_TEST_TABLE VALUE ( 1 , 'Test1' , 'Thisi is Test!!');
Query OK, 1 row affected (0.02 sec)

mysql> SELECT * FROM MY_TEST_TABLE;
+----+-------+----------------+
| NO | NAME  | MESSAGE        |
+----+-------+----------------+
|  1 | Test1 | Thisi is Test!! |
+----+-------+----------------+
1 row in set (0.02 sec)

mysql> UPDATE MY_TEST_TABLE SET NAME='Networld', MESSAGE='QuickTransit Test!' WHERE MY_TEST_TABLE.NO=1;
Query OK, 1 row affected (0.02 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> SELECT * FROM MY_TEST_TABLE;
+----+----------+-------------------+
| NO | NAME     | MESSAGE           |
+----+----------+-------------------+
|  1 | Networld | QuickTransit Test! |
+----+----------+-------------------+
1 row in set (0.02 sec)

mysql> INSERT INTO MY_TEST_TABLE VALUE ( 2 , 'Test2' , 'Thisi is Test2!!');
Query OK, 1 row affected (0.01 sec)
```

```
mysql> DELETE FROM MY_TEST_TABLE WHERE MY_TEST_TABLE.NO=2;
Query OK, 1 row affected (0.01 sec)

mysql> SELECT * FROM MY_TEST_TABLE;
+----+----------+-------------------+
| NO | NAME     | MESSAGE           |
+----+----------+-------------------+
|  1 | Networld | QuickTransit Test! |
+----+----------+-------------------+
1 row in set (0.02 sec)

mysql>
```

④ 仮想 Solairs 環境への UNIX Bench のインストール及び実行

- 検証内容 及び 結果
  - UNIX Bench 4.1 をインストール → 成功
  - ベンチマークの実行 → 成功
- RHEL AS4.5 での実行結果

```
bash-3.00# ./Run
make all
Checking distribution of files
./pgms  exists
./src  exists
./testdir  exists
./tmp  exists
./results  exists

   #    # #    # #  # #    #          #####   ######  #    #   ####   #    #
   #    # ##   # #  #  # #  #          #    #  #       ##   #  #    #  #    #
   #    # # #  # #  #    ##            #####   #####   # #  # #       ######
   #    # #  # # #  #    ##            #    #  #       #  # # #       #    #
   #    # #   ##  #   #  #            #    #  #       #   ##  #    #  #    #
    ####  #    # #  # #    #          #####   ######  #    #   ####   #    #

                  4          1          Based on the Byte Magazine Unix Benchmark
                 44         11
   v    v       4 4         1
    v v        44444         1          v4.1 revisions mostly by David C. Niemi,
     v             4    o    111        Reston, VA, USA  <niemi@tux.org>
```

```
Dhrystone 2 using register variables  1 2 3 4 5 6 7 8 9 10

Double-Precision Whetstone  1 2 3 4 5 6 7 8 9 10

System Call Overhead  1 2 3 4 5 6 7 8 9 10

Pipe Throughput  1 2 3 4 5 6 7 8 9 10

Pipe-based Context Switching  1 2 3 4 5 6 7 8 9 10

Process Creation  1 2 3

Execl Throughput  1 2 3

Filesystem Throughput 1024 bufsize 2000 maxblocks  1 2 3

Filesystem Throughput 256 bufsize 500 maxblocks  1 2 3

Filesystem Throughput 4096 bufsize 8000 maxblocks  1 2 3

Shell Scripts (1 concurrent)  1 2 3
Shell Scripts (8 concurrent)  1 2 3
Shell Scripts (16 concurrent)  1 2 3

Arithmetic Test (type = short)  1 2 3

Arithmetic Test (type = int)  1 2 3

Arithmetic Test (type = long)  1 2 3

Arithmetic Test (type = float)  1 2 3

Arithmetic Test (type = double)  1 2 3

Arithoh  1 2 3

C Compiler Throughput  1 2 3

Dc: sqrt(2) to 99 decimal places  1 2 3

Recursion Test--Tower of Hanoi  1 2 3

========================================================

   BYTE UNIX Benchmarks (Version 4.1.0)
   System -- SunOS pq582-0 5.10 CO_CL_BASELINE_0094 sun4u sparc
SUNW,Sun-Fire-V210
   Start Benchmark Run: Fri Feb 29 13:14:37 JST 2008
    1 interactive users.
     1:14pm  up  2:16,  1 user,  load average: 0.87, 0.57, 0.49
   lrwxrwxrwx  1 root  root  13 Feb 29 13:06 /bin/sh -> ../../sbin/sh
```

```
   /bin/sh:        ELF 32-bit MSB executable SPARC Version 1, dynamically linked, not
stripped
   /dev/sda3              53876156 5631632 45507736      12%      /
Dhrystone 2 using register variables       2965125.9 lps   (10.1 secs, 10 samples)
Double-Precision Whetstone                     487.7 MWIPS (9.9 secs, 10 samples)
System Call Overhead                         46636.3 lps   (10.1 secs, 10 samples)
Pipe Throughput                             135528.4 lps   (10.1 secs, 10 samples)
Pipe-based Context Switching                 23250.5 lps   (10.1 secs, 10 samples)
Process Creation                               106.6 lps   (30.1 secs, 3 samples)
Execl Throughput                                 9.1 lps   (30.0 secs, 3 samples)
File Read 1024 bufsize 2000 maxblocks       277429.0 KBps  (30.0 secs, 3 samples)
File Write 1024 bufsize 2000 maxblocks      196378.0 KBps  (30.0 secs, 3 samples)
File Copy 1024 bufsize 2000 maxblocks       112882.0 KBps  (30.0 secs, 3 samples)
File Read 256 bufsize 500 maxblocks          72360.0 KBps  (30.0 secs, 3 samples)
File Write 256 bufsize 500 maxblocks         50522.0 KBps  (30.0 secs, 3 samples)
File Copy 256 bufsize 500 maxblocks          29142.0 KBps  (30.0 secs, 3 samples)
File Read 4096 bufsize 8000 maxblocks      1012212.0 KBps  (30.0 secs, 3 samples)
File Write 4096 bufsize 8000 maxblocks      705894.0 KBps  (30.0 secs, 3 samples)
File Copy 4096 bufsize 8000 maxblocks       317768.0 KBps  (30.0 secs, 3 samples)
Shell Scripts (1 concurrent)                   39.9 lpm   (60.1 secs, 3 samples)
Shell Scripts (8 concurrent)                   20.3 lpm   (60.1 secs, 3 samples)
Shell Scripts (16 concurrent)                  12.0 lpm   (60.1 secs, 3 samples)
Arithmetic Test (type = short)              193292.5 lps   (10.1 secs, 3 samples)
Arithmetic Test (type = int)                204190.9 lps   (10.1 secs, 3 samples)
Arithmetic Test (type = long)               204205.8 lps   (10.1 secs, 3 samples)
Arithmetic Test (type = float)              102198.1 lps   (10.1 secs, 3 samples)
Arithmetic Test (type = double)             145947.6 lps   (10.1 secs, 3 samples)
Arithoh                                    7003050.2 lps   (10.1 secs, 3 samples)
C Compiler Throughput                          16.0 lpm   (60.1 secs, 3 samples)
Dc: sqrt(2) to 99 decimal places              490.4 lpm   (30.1 secs, 3 samples)
Recursion Test--Tower of Hanoi              31071.3 lps   (20.1 secs, 3 samples)


                    INDEX VALUES
TEST                                            BASELINE     RESULT
INDEX

Dhrystone 2 using register variables        116700.0  2965125.9      254.1
Double-Precision Whetstone                      55.0      487.7       88.7
Execl Throughput                                43.0        9.1        2.1
File Copy 1024 bufsize 2000 maxblocks         3960.0   112882.0      285.1
File Copy 256 bufsize 500 maxblocks           1655.0    29142.0      176.1
File Copy 4096 bufsize 8000 maxblocks         5800.0   317768.0      547.9
Pipe Throughput                              12440.0   135528.4      108.9
Pipe-based Context Switching                  4000.0    23250.5       58.1
Process Creation                               126.0      106.6        8.5
Shell Scripts (8 concurrent)                     6.0       20.3       33.8
System Call Overhead                         15000.0    46636.3       31.1
                                                                  =========
        FINAL SCORE                                                    64.0
bash-3.00#
```

- RHEL AS5 での実行結果

```
bash-3.00# ./Run
make all
Checking distribution of files
./pgms  exists
./src  exists
./testdir  exists
./tmp  exists
./results  exists

   #     #  #     #  #  #     #          #####   #######  #     #   ####   #     #
   #     #  ##    #  #   #  #           #     #  #        ##    #  #    #  #     #
   #     #  # #   #  #     ##            #####   #####    # #   #  #       #######
   #     #  #  #  #  #     ##                 #  #        #  #  #  #       #     #
   #     #  #   # #  #   #  #           #     #  #        #   # #  #    #  #     #
    #####   #     #  #  #     #          #####   #######  #    ##   ####   #     #

                  4              1                  Based on the Byte Magazine Unix
Benchmark
                 44          11
    v     v         4 4          1
     v v          44444          1              v4.1 revisions mostly by David C. Niemi,
      v              4     o     111           Reston, VA, USA  <niemi@tux.org>



Dhrystone 2 using register variables  1 2 3 4 5 6 7 8 9 10

Double-Precision Whetstone  1 2 3 4 5 6 7 8 9 10

System Call Overhead  1 2 3 4 5 6 7 8 9 10

Pipe Throughput  1 2 3 4 5 6 7 8 9 10

Pipe-based Context Switching  1 2 3 4 5 6 7 8 9 10

Process Creation  1 2 3

Execl Throughput  1 2 3

Filesystem Throughput 1024 bufsize 2000 maxblocks  1 2 3

Filesystem Throughput 256 bufsize 500 maxblocks  1 2 3

Filesystem Throughput 4096 bufsize 8000 maxblocks  1 2 3

Shell Scripts (1 concurrent)  1 2 3
Shell Scripts (8 concurrent)  1 2 3
Shell Scripts (16 concurrent)  1 2 3
```

```
Arithmetic Test (type = short)    1 2 3

Arithmetic Test (type = int)    1 2 3

Arithmetic Test (type = long)    1 2 3

Arithmetic Test (type = float)    1 2 3

Arithmetic Test (type = double)    1 2 3

Arithoh    1 2 3

C Compiler Throughput    1 2 3

Dc: sqrt(2) to 99 decimal places    1 2 3

Recursion Test--Tower of Hanoi    1 2 3

========================================================================

   BYTE UNIX Benchmarks (Version 4.1.0)
   System -- SunOS pq582-1 5.10 CO_CL_BASELINE_0094 sun4u sparc SUNW,Sun-Fire-V210
   Start Benchmark Run: Fri Feb 29 12:54:49 JST 2008
     1 interactive users.
     12:54pm    up 3 day(s), 23:35,    1 user,    load average: 0.70, 0.73, 0.94
   lrwxrwxrwx     1 root         root                13 Feb 29 10:33 /bin/sh -> ../../sbin/sh
   /bin/sh:          ELF 32-bit MSB executable SPARC Version 1, dynamically linked, not stripped
   /dev/sda3                  53020092 5901672 44381632       12%       /
Dhrystone 2 using register variables        2966579.4 lps     (10.1 secs, 10 samples)
Double-Precision Whetstone                      488.2 MWIPS (9.9 secs, 10 samples)
System Call Overhead                          41595.3 lps     (10.1 secs, 10 samples)
Pipe Throughput                              117633.0 lps     (10.1 secs, 10 samples)
Pipe-based Context Switching                  28504.0 lps     (10.1 secs, 10 samples)
Process Creation                                147.7 lps     (30.1 secs, 3 samples)
Execl Throughput                                  9.9 lps     (29.3 secs, 3 samples)
File Read 1024 bufsize 2000 maxblocks       245638.0 KBps    (30.0 secs, 3 samples)
File Write 1024 bufsize 2000 maxblocks      178800.0 KBps    (30.0 secs, 3 samples)
File Copy 1024 bufsize 2000 maxblocks       101359.0 KBps    (30.0 secs, 3 samples)
File Read 256 bufsize 500 maxblocks          63832.0 KBps    (30.0 secs, 3 samples)
File Write 256 bufsize 500 maxblocks         45744.0 KBps    (30.0 secs, 3 samples)
File Copy 256 bufsize 500 maxblocks          26019.0 KBps    (30.0 secs, 3 samples)
File Read 4096 bufsize 8000 maxblocks       913406.0 KBps    (30.0 secs, 3 samples)
File Write 4096 bufsize 8000 maxblocks      656087.0 KBps    (30.0 secs, 3 samples)
File Copy 4096 bufsize 8000 maxblocks       291416.0 KBps    (30.0 secs, 3 samples)
Shell Scripts (1 concurrent)                    44.9 lpm     (60.1 secs, 3 samples)
Shell Scripts (8 concurrent)                    23.0 lpm     (60.1 secs, 3 samples)
Shell Scripts (16 concurrent)                   14.0 lpm     (60.1 secs, 3 samples)
Arithmetic Test (type = short)              193295.0 lps     (10.1 secs, 3 samples)
Arithmetic Test (type = int)                204293.5 lps     (10.1 secs, 3 samples)
Arithmetic Test (type = long)               204336.8 lps     (10.1 secs, 3 samples)
```

```
Arithmetic Test (type = float)          102275.8 lps   (10.1 secs, 3 samples)
Arithmetic Test (type = double)         144961.4 lps   (10.1 secs, 3 samples)
Arithoh                                 7007678.7 lps  (10.1 secs, 3 samples)
C Compiler Throughput                   18.0 lpm       (60.1 secs, 3 samples)
Dc: sqrt(2) to 99 decimal places        540.9 lpm      (30.1 secs, 3 samples)
Recursion Test--Tower of Hanoi          31076.9 lps    (20.1 secs, 3 samples)


                    INDEX VALUES
TEST                                    BASELINE       RESULT
INDEX

Dhrystone 2 using register variables    116700.0   2966579.4       254.2
Double-Precision Whetstone                  55.0       488.2        88.8
Execl Throughput                            43.0         9.9         2.3
File Copy 1024 bufsize 2000 maxblocks     3960.0    101359.0       256.0
File Copy 256 bufsize 500 maxblocks       1655.0     26019.0       157.2
File Copy 4096 bufsize 8000 maxblocks     5800.0    291416.0       502.4
Pipe Throughput                          12440.0    117633.0        94.6
Pipe-based Context Switching              4000.0     28504.0        71.3
Process Creation                           126.0       147.7        11.7
Shell Scripts (8 concurrent)                6.0        23.0        38.3
System Call Overhead                    15000.0     41595.3        27.7
                                                                 =========
        FINAL SCORE                                                  65.0
bash-3.00#
```

○ 結論

今回の検証結果より、PRIMEQUEST580 上にて QuickTransit for Solaris/SPARC-to-Linux/Itanium Version 1.1 が正常動作する事が確認された。

本検証及びその他のお問い合わせ先
株式会社ネットワールド
マーケティング 1 部 ビジネス開発グループ
TEL: 03-5210-5081
FAX: 03-52103912
お問い合わせ窓口: http://www.networld.co.jp/transitive/call.htm

以上