

## 検証ログ詳細

### 1 . RamSan-220 の検証ログ

#### (ア)設定

```
Texas Memory Systems
SCI-Ramsan Monitor
Software Version: 1.1.9
Ethernet address: 00:20:c2:01:37:02
Ethernet IP: 10.20.4.20
Capacity: 8192 Megabytes
System Mode: DataSync
```

ディスク容量は 8GB と  
なっています。

#### (イ) LUN 設定

```
Enter the LUN number (0-3, default is all):
LUN 0 -- 2048 Mb
  controllers/channels: 1a
  lun mask: No masking
LUN 1 -- 2048 Mb
  controllers/channels: 1b
  lun mask: No masking
LUN 2 -- 2048 Mb
  controllers/channels: 2a
  lun mask: No masking
LUN 3 -- 2048 Mb
  controllers/channels: 2b
  lun mask: No masking
```

8GB のディスク容量を  
2GB × 4 の論理ドライ  
ブに分割しました。  
これを、4つのホストポ  
ートに割当てています。

1 a  
コントローラ番号 Port 番号

#### (ウ) 富士通製ファイバーチャネルカード接続

##### 1 . RamSan-220 のホストポート設定

```
FC34 Controller 1 -- Active

      ** Channel A **          ** Channel B **
world wide name: 10:01:00:20:c2:01:54:36 11:01:00:20:c2:01:54:36
node name:       20:01:00:20:c2:01:54:36 21:01:00:20:c2:01:54:36
topology:        Arbitrated loop          Arbitrated loop
link speed:      Auto detect              Auto detect
loop ID:         soft                     soft
frame size:      2048                     2048

FC34 Controller 2 -- Active

      ** Channel A **          ** Channel B **
world wide name: 10:02:00:20:c2:01:54:36 11:02:00:20:c2:01:54:36
node name:       20:02:00:20:c2:01:54:36 21:02:00:20:c2:01:54:36
topology:        Arbitrated loop          Arbitrated loop
link speed:      Auto detect              Auto detect
loop ID:         soft                     soft
frame size:      2048                     2048
```

トポロジ-は  
Arbitrated loop  
に設定していま  
す。

## 2 . リンクアップした状態

|  |                           |
|--|---------------------------|
| FC34 Controller 1 - Firmware version: C.19<br>Channel A: 10:01:00:20:c2:01:54:36   online   2Gb AL<br>Channel B: 11:01:00:20:c2:01:54:36   online   2Gb AL<br>FC34 Controller 2 - Firmware version: 1.19<br>Channel A: 10:02:00:20:c2:01:54:36   online   2Gb AL<br>Channel B: 11:02:00:20:c2:01:54:36   online   2Gb AL | 2Gbps FC-AL で接続<br>しています。 |
|--|---------------------------|

## (エ)富士通製ファイバーチャネルスイッチ接続

### 1 . RamSan-220 のホストポート設定

|  |   |
|--|---|
| FC34 Controller 1 -- Active<br><br>** Channel A **                   ** Channel B **<br>world wide name: 10:01:00:20:c2:01:54:36   11:01:00:20:c2:01:54:36<br>node name:       20:01:00:20:c2:01:54:36   21:01:00:20:c2:01:54:36<br>topology:        Point-to-point/Fabric    Point-to-point/Fabric<br>link speed:      Auto detect              Auto detect<br>loop ID:         n/a                        n/a<br>frame size:      2048                       2048<br><br>FC34 Controller 2 -- Active<br><br>** Channel A **                   ** Channel B **<br>world wide name: 10:02:00:20:c2:01:54:36   11:02:00:20:c2:01:54:36<br>node name:       20:02:00:20:c2:01:54:36   21:02:00:20:c2:01:54:36<br>topology:        Point-to-point/Fabric    Point-to-point/Fabric<br>link speed:      Auto detect              Auto detect<br>loop ID:         n/a                        n/a<br>frame size:      2048                       2048 | トポロジ-は<br>Point-to-point/F<br>abric に設定して<br>います。 |
|--|---|

## 2 . リンクアップした状態

|  |                            |
|--|----------------------------|
| FC34 Controller 1 - Firmware version: C.19<br>Channel A: 10:01:00:20:c2:01:54:36   online   2Gb FAB<br>Channel B: 11:01:00:20:c2:01:54:36   online   2Gb FAB<br>FC34 Controller 2 - Firmware version: 1.19<br>Channel A: 10:02:00:20:c2:01:54:36   online   2Gb FAB<br>Channel B: 11:02:00:20:c2:01:54:36   online   2Gb FAB | 2Gbps Fabric で接続<br>しています。 |
|--|----------------------------|

### 3 . ファイバーチャネルスイッチの状態

```
Switch:admin> switchshow
switchName:      Switch
switchType:      16.2
switchState:     Online
switchMode:      Native
switchRole:      Principal
switchDomain:     1
switchId:        fffc01
switchWwn:       10:00:00:60:69:c0:1a:46
switchBeacon:    OFF
Zoning:          OFF
port 0: id N2 Online      F-Port 10:00:00:00:0e:24:42:7d
port 1: id N2 Online      F-Port 10:00:00:00:0e:24:42:88
port 2: id N2 Online      F-Port 10:00:00:00:0e:24:42:72
port 3: id N2 Online      F-Port 10:00:00:00:0e:24:41:be
port 4: id N2 Online      F-Port 11:02:00:20:c2:01:54:36
port 5: id N2 Online      F-Port 10:02:00:20:c2:01:54:36
port 6: id N2 Online      F-Port 11:01:00:20:c2:01:54:36
port 7: id N2 Online      F-Port 10:01:00:20:c2:01:54:36
```

RamSan-220 は、  
Port4~7 にログインし  
ています。

## 2 . PRIMEPOWER650 の検証ログ

PRIMEPOWER650 と RamSan-220 とのダイレクト接続の例

(ア) 起動時のメッセージ

```
Jul 14 16:42:08 pw650-5 scsi: [ID 107833 kern.notice] /pci@81,2000/fibre-channel@1 (fjpfca1):
Jul 14 16:42:08 pw650-5          INFO : AL link up (private loop) . alpa=0x1, 2Gbps.
Jul 14 16:42:08 pw650-5 scsi: [ID 107833 kern.notice] /pci@84,2000/fibre-channel@1 (fjpfca2):
Jul 14 16:42:08 pw650-5          INFO : AL link up (private loop) . alpa=0x1, 2Gbps.
Jul 14 16:42:08 pw650-5 scsi: [ID 107833 kern.notice] /pci@85,2000/fibre-channel@1 (fjpfca3):
Jul 14 16:42:08 pw650-5          INFO : AL link up (private loop) . alpa=0x1, 2Gbps.
Jul 14 16:42:10 pw650-5 scsi: [ID 107833 kern.notice] /pci@81,2000/fibre-channel@1 (fjpfca1):
Jul 14 16:42:10 pw650-5          found target. target_id=0x0 port_id=0xef wwn=10010020c2015436
Jul 14 16:42:10 pw650-5 scsi: [ID 107833 kern.notice] /pci@84,2000/fibre-channel@1 (fjpfca2):
Jul 14 16:42:10 pw650-5          found target. target_id=0x0 port_id=0xef wwn=11020020c2015436
Jul 14 16:42:10 pw650-5 scsi: [ID 107833 kern.notice] /pci@85,2000/fibre-channel@1 (fjpfca3):
Jul 14 16:42:10 pw650-5          found target. target_id=0x0 port_id=0xef wwn=10020020c2015436
Jul 14 16:42:10 pw650-5 scsi: [ID 193665 kern.info] sd45 at fjpfca1: target 0 lun 0
Jul 14 16:42:10 pw650-5 genunix: [ID 936769 kern.info] sd45 is /pci@81,2000/fibre-channel@1/sd@0,0
Jul 14 16:42:10 pw650-5 scsi: [ID 365881 kern.info]          <TMS-FC34-con1A-C.19 cyl 1021 alt 2 hd 128 sec 32>
Jul 14 16:42:10 pw650-5 scsi: [ID 193665 kern.info] sd151 at fjpfca3: target 0 lun 2
Jul 14 16:42:10 pw650-5 genunix: [ID 936769 kern.info] sd151 is /pci@85,2000/fibre-channel@1/sd@0,2
Jul 14 16:42:10 pw650-5 scsi: [ID 365881 kern.info]          <TMS-FC34-con2A-1.19 cyl 1021 alt 2 hd 128 sec 32>
Jul 14 16:42:10 pw650-5 scsi: [ID 193665 kern.info] sd140 at fjpfca2: target 0 lun 3
Jul 14 16:42:10 pw650-5 genunix: [ID 936769 kern.info] sd140 is /pci@84,2000/fibre-channel@1/sd@0,3
Jul 14 16:42:10 pw650-5 scsi: [ID 365881 kern.info]          <TMS-FC34-con2B-1.19 cyl 1021 alt 2 hd 128 sec 32>
Jul 14 16:42:18 pw650-5 scsi: [ID 107833 kern.notice] /pci@80,2000/fibre-channel@1 (fjpfca0):
Jul 14 16:42:18 pw650-5          INFO : AL link up (private loop) . alpa=0x1, 2Gbps.
Jul 14 16:42:20 pw650-5 scsi: [ID 107833 kern.notice] /pci@80,2000/fibre-channel@1 (fjpfca0):
Jul 14 16:42:20 pw650-5          found target. target_id=0x0 port_id=0xef wwn=11010020c2015436
Jul 14 16:42:20 pw650-5 scsi: [ID 193665 kern.info] sd114 at fjpfca0: target 0 lun 1
Jul 14 16:42:20 pw650-5 genunix: [ID 936769 kern.info] sd114 is /pci@80,2000/fibre-channel@1/sd@0,1
Jul 14 16:42:20 pw650-5 scsi: [ID 365881 kern.info]          <TMS-FC34-con1B-C.19 cyl 1021 alt 2 hd 128 sec 32>
```

## (イ) format コマンド

```
# format
Searching for disks...done

c2t0d1: configured with capacity of 1.99GB
c3t0d0: configured with capacity of 1.99GB
c4t0d3: configured with capacity of 1.99GB
c5t0d2: configured with capacity of 1.99GB

AVAILABLE DISK SELECTIONS:
  0. c0t0d0 <FUJITSU-MAP3367NC-3701 cyl 12435 alt 2 hd 10 sec 574>
    /pci@87,2000/scsi@1/sd@0,0
  1. c0t1d0 <FUJITSU-MAP3367NC-3701 cyl 12435 alt 2 hd 10 sec 574>
    /pci@87,2000/scsi@1/sd@1,0
  2. c2t0d1 <TMS-FC34-con1B-C.19 cyl 1021 alt 2 hd 128 sec 32>
    /pci@80,2000/fibre-channel@1/sd@0,1
  3. c3t0d0 <TMS-FC34-con1A-C.19 cyl 1021 alt 2 hd 128 sec 32>
    /pci@81,2000/fibre-channel@1/sd@0,0
  4. c4t0d3 <TMS-FC34-con2B-1.19 cyl 1021 alt 2 hd 128 sec 32>
    /pci@84,2000/fibre-channel@1/sd@0,3
  5. c5t0d2 <TMS-FC34-con2A-1.19 cyl 1021 alt 2 hd 128 sec 32>
    /pci@85,2000/fibre-channel@1/sd@0,2

partition> p
Current partition table (original):
Total disk cylinders available: 1021 + 2 (reserved cylinders)

Part    Tag    Flag    Cylinders      Size      Blocks
  0      root   wm      0 - 31         64.00MB   (32/0/0)   131072
  1      swap   wu      32 - 95        128.00MB   (64/0/0)   262144
  2      backup wu      0 - 1020       1.99GB    (1021/0/0) 4182016
  3 unassigned wm      0              0          (0/0/0)    0
  4 unassigned wm      0              0          (0/0/0)    0
  5 unassigned wm      0              0          (0/0/0)    0
  6      usr    wm      96 - 1020     1.81GB    (925/0/0)  3788800
  7 unassigned wm      0              0          (0/0/0)    0
```

RamSan-220 の論理ドライブ番号は LUN0 ~ 3 となっています。従って、/kernel/drv/sd.conf を複数の論理ドライブが出来るように修正が必要です。

(ウ)1 論理ドライブでファイルシステムを作成しマウントした例

```
# newfs /dev/rdisk/c2t0d1s2
newfs: construct a new file system /dev/rdisk/c2t0d1s2: (y/n)? y
/dev/rdisk/c2t0d1s2: 4182016 sectors in 1021 cylinders of 128 tracks, 32 sectors
                2042.0MB in 45 cyl groups (23 c/g, 46.00MB/g, 11264 i/g)
super-block backups (for fsck -F ufs -o b=#) at:
 32, 94272, 188512, 282752, 376992, 471232, 565472, 659712, 753952, 848192,
942432, 1036672, 1130912, 1225152, 1319392, 1413632, 1507872, 1602112,
1696352, 1790592, 1884832, 1979072, 2073312, 2167552, 2261792, 2356032,
2450272, 2544512, 2638752, 2732992, 2827232, 2921472, 3015712, 3109952,
3204192, 3298432, 3392672, 3486912, 3581152, 3675392, 3769632, 3863872,
3958112, 4052352, 4146592,
# mkdir /ramsan0
# mount /dev/dsk/c2t1d0s2 /ramsan0
mount: /dev/dsk/c2t1d0s2 or /ramsan0, no such file or directory
# mount /dev/dsk/c2t0d1s2 /ramsan0
# df -k
Filesystem      kbytes  used  avail capacity  Mounted on
/dev/dsk/c0t0d0s0 30811171 2126504 28376556    7%    /
/proc            0         0         0     0%    /proc
fd               0         0         0     0%    /dev/fd
mnttab           0         0         0     0%    /etc/mnttab
swap            10953952    24 10953928    1%    /var/run
swap            10953944    16 10953928    1%    /tmp
/dev/dsk/c2t0d1s2 2026911     9 1966095    1%    /ramsan0
```

(エ)SDS ( Solstice Disk Suite ) によるストライピングドライブの作成例

1 . パーティションの作成

```
partition> 0
Part      Tag    Flag   Cylinders      Size      Blocks
  0      root   wm     0 - 31        64.00MB   (32/0/0) 131072

Enter partition id tag[root]:
Enter partition permission flags[wm]:
Enter new starting cyl[0]:
Enter partition size[131072b, 32c, 64.00mb, 0.06gb]: 1c
partition> 6
Part      Tag    Flag   Cylinders      Size      Blocks
  6       usr   wm    96 - 1020      1.81GB   (925/0/0) 3788800

Enter partition id tag[usr]:
Enter partition permission flags[wm]:
Enter new starting cyl[96]: 1
Enter partition size[3788800b, 925c, 1850.00mb, 1.81gb]: 1020c
partition> p
Current partition table (unnamed):
Total disk cylinders available: 1021 + 2 (reserved cylinders)

Part      Tag    Flag   Cylinders      Size      Blocks
  0      root   wm     0 - 0          2.00MB   (1/0/0)   4096
  1      swap   wu    32 - 95        128.00MB (64/0/0) 262144
  2  backup   wu     0 - 1020      1.99GB   (1021/0/0) 4182016
  3 unassigned wm     0              0         (0/0/0)    0
  4 unassigned wm     0              0         (0/0/0)    0
  5 unassigned wm     0              0         (0/0/0)    0
  6       usr   wm     1 - 1020      1.99GB   (1020/0/0) 4177920
  7 unassigned wm     0              0         (0/0/0)    0
```

## 2 . SDS の設定

```
#metadb -a -f c2t0d1s0 c3t0d0s0 c4t0d3s0 c5t0d2s0
# metadb
      flags          first blk      block count
a      u             16             1034        /dev/dsk/c2t0d1s0
a      u             16             1034        /dev/dsk/c3t0d0s0
a      u             16             1034        /dev/dsk/c4t0d3s0
a      u             16             1034        /dev/dsk/c5t0d2s0

pw650-5# metainit d10 1 4 c2t0d1s6 c3t0d0s6 c4t0d3s6 c5t0d2s6 -i 32k
d10: Concat/Stripe is setup
pw650-5# metastat
d10: Concat/Stripe
      Size: 16711680 blocks
      Stripe 0: (interlace: 64 blocks)
      Device          Start Block  Dbase
      c2t0d1s6         0           No
      c3t0d0s6         0           No
      c4t0d3s6         0           No
      c5t0d2s6         0           No
```

## 3 . ファイルシステムの作成とマウント

```
pw650-5# newfs /dev/md/rdisk/d10
newfs: construct a new file system /dev/md/rdisk/d10: (y/n)? y
/dev/md/rdisk/d10:      16711680 sectors in 4080 cylinders of 128 tracks, 32 sec
tors
      8160.0MB in 157 cyl groups (26 c/g, 52.00MB/g, 6400 i/g)
super-block backups (for fsck -F ufs -o b=#) at:
  32, 106560, 213088, 319616, 426144, 532672, 639200, 745728, 852256, 958784,
  1065312, 1171840, 1278368, 1384896, 1491424, 1597952, 1704480, 1811008,
      :
  15655552, 15762080, 15868608, 15975136, 16081664, 16188192, 16294720,
  16401248, 16507776, 16614304,

pw650-5# mount /dev/md/dsk/d10 /ramsan0
pw650-5# df -k
Filesystem          kbytes  used  avail capacity  Mounted on
/dev/dsk/c0t0d0s0  30811171 2705917 27797143    9%      /
/proc                0         0         0     0%     /proc
fd                   0         0         0     0%     /dev/fd
mnttab               0         0         0     0%     /etc/mnttab
swap                 10927816    24 10927792    1%     /var/run
swap                 10927808    16 10927792    1%     /tmp
/dev/md/dsk/d10     8227709     9 8145423    1%     /ramsan0
```