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**V210 Datacon Master VME Module
Test Procedure
(v210TestProcedure.doc)**

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1.0 New Module Configuration

The following steps must be performed for new V210 Modules.

1. Solder wire jumpers to configure the serial number. JP3 provides 5 serial number vias, SN4, SN3, SN2, SN1 and SN0. Solder jumper wires to provide the desired serial number according to the following table. IN indicates that a wire jumper is installed, OUT indicates that the vias remain open.

Serial Number	SN4	SN3	SN2	SN1	SN0
1	IN	IN	IN	IN	OUT
2	IN	IN	IN	OUT	IN
3	IN	IN	IN	OUT	OUT
4	IN	IN	OUT	IN	IN
5	IN	IN	OUT	IN	OUT
6	IN	IN	OUT	OUT	IN
7	IN	IN	OUT	OUT	OUT
8	IN	OUT	IN	IN	IN
9	IN	OUT	IN	IN	OUT
10	IN	OUT	IN	OUT	IN
11	IN	OUT	IN	OUT	OUT
12	IN	OUT	OUT	IN	IN
13	IN	OUT	OUT	IN	OUT
14	IN	OUT	OUT	OUT	INT
15	IN	OUT	OUT	OUT	OUT
16	OUT	IN	IN	IN	IN
17	OUT	IN	IN	IN	OUT
18	OUT	IN	IN	OUT	IN
19	OUT	IN	IN	OUT	OUT
20	OUT	IN	OUT	IN	IN
21	OUT	IN	OUT	IN	OUT
22	OUT	IN	OUT	OUT	IN
23	OUT	IN	OUT	OUT	OUT
24	OUT	OUT	IN	IN	IN
25	OUT	OUT	IN	IN	OUT
26	OUT	OUT	IN	OUT	IN
27	OUT	OUT	IN	OUT	OUT
28	OUT	OUT	OUT	IN	IN
29	OUT	OUT	OUT	IN	OUT
30	OUT	OUT	OUT	OUT	IN
31	OUT	OUT	OUT	OUT	OUT

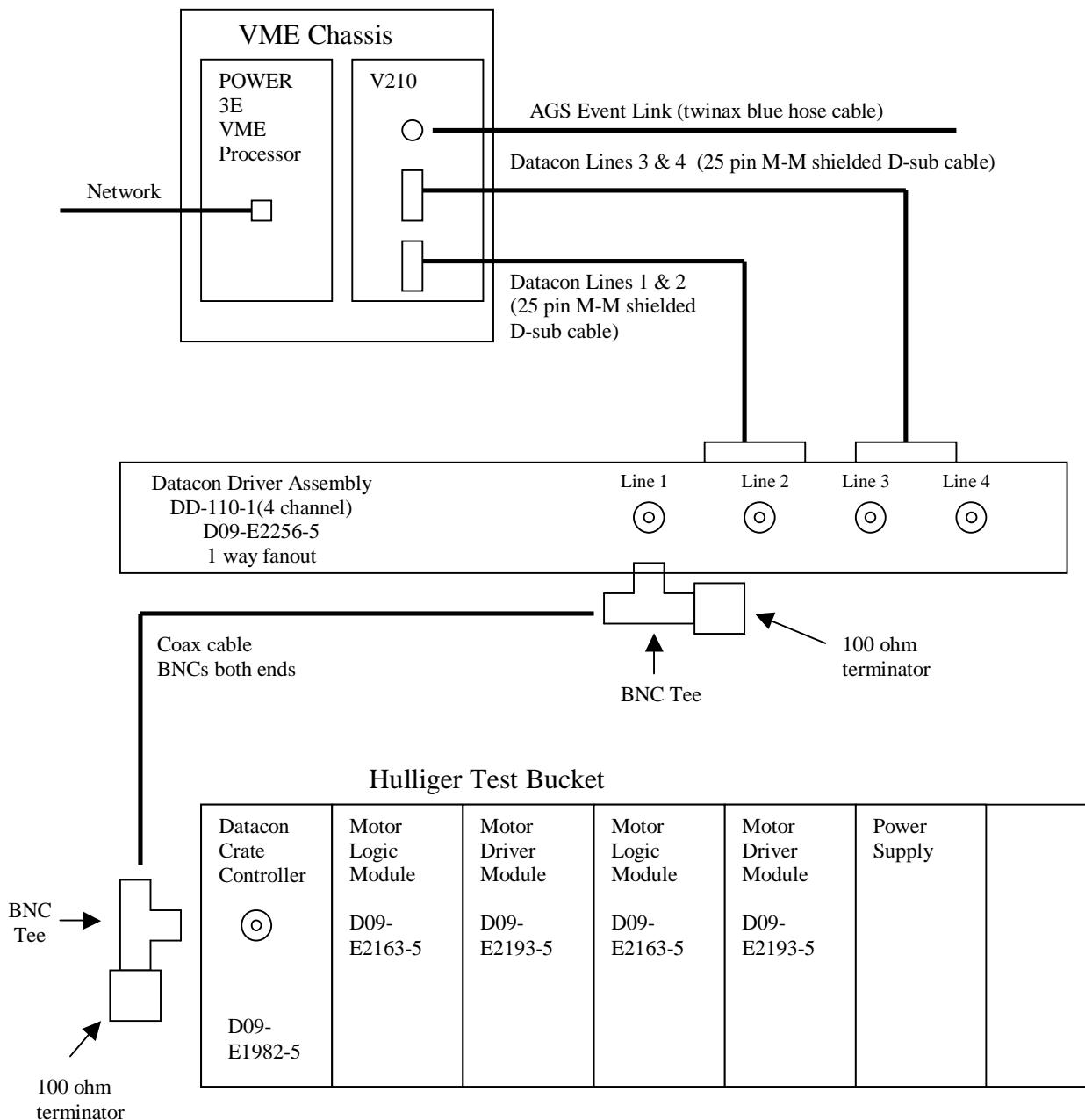
2. Program the module gate arrays and firmware according to:

D09-E2979 V210 Datacon Master Programmed Assembly

3. Mark the PC board with the serial number and assembly revision.

2.0 Test Setup Hardware

Configure the test setup hardware as shown in the following diagram.



3.0 Module Test Procedure

1. Configure the V210 module for base address 0x2800000.
A22, A24, A26, A27, A28, A29, A30, A31 jumpers IN.
A23, A25 jumpers OUT.
2. Insert the V210 module in a VME chassis with a POWER 3E processor.
3. Turn on all test equipment power.

Expected results:

- a. The V210 CPU FAIL LED is off and the CPU RUN LED is on, indicating that the i960 processor firmware program is executing as expected.
- b. The V210 NO LOCK LED is off indicating that the event link interface circuit is detecting a carrier signal in the expected frequency range.

4. Disconnect the Event Link cable

Expected result: The V210 NO LOCK LED is on indicating an event link carrier frequency error.

5. Re-connect the Event Link cable

Expected result: The V210 NO LOCK LED is off indicating that the event link interface circuit is detecting a carrier signal in the expected frequency range.

6. Connect a terminal to the Processor using either a serial port connection or a networked X-terminal connection.
7. View the VME ID and the firmware date by entering the following vxWorks command.

-> d 0xc2900000, 128, 1

Expected results:

- a. The V210 VME Select LED flashes.
- b. The output produced is similar to the following.

```
-> d 0xc2900000,128,1
c2900000: 2e 56 2e 4d 2e 45 2e 49 2e 44 2e 42 2e 4e 2e 4c      *.V.M.E.I.D.B.N.L*
c2900010: 2e 56 2e 32 2e 31 2e 30 2e 00 2e 00 2e 00 2e 00      *.V.2.1.0.....*
c2900020: 2e 00 2e 41 2e 00 2e 00 2e 30 2e 30 2e 32 2e 30      *...A....0.0.2.0*
c2900030: 2e 00      *.....*.....*
c2900040: 4d 61 79 20 20 36 20 32 30 30 34 2e 2e 2e 2e 2e      *May 6 2004....*
c2900050: 31 35 3a 31 36 3a 34 33 2e 2e 2e 2e 2e 2e 2e 2e      *15:16:43....*
c2900060: 2e      *.....*.....*
c2900070: 2e      *.....*.....*
value = 21 = 0x15
->
```

- c. The expected revision letter and serial number are displayed. In the output shown above the revision letter is A and the serial number is 0020.
- d. The expected firmware revision date and time are displayed. In the output shown above the firmware revision date is “May 6 2004” and the revision time is “15:16:43”.

8. Enter the following commands to load the V210 device driver and test code.

```
-> cd "/operations/agsfec/CurrentRelease/POWER3E/data/config/drivers"
value = 0 = 0x0
-> ld <dtcn2Drv
value = 25712344 = 0x18856d8
-> ld <dtcnX
value = 25714152 = 0x1885de8
-> ld <dtcnStress
value = 24641632 = 0x1780060
-> dtcn2Drv
0x174b0a0 (tShell): Installed dtcn2Drv, num=17
value = 0 = 0x0
->
```

9. Initialize the V210 Module by entering the following command.

```
-> Xinit
```

Expected results:

- a. The output produced is similar to the output shown below.
- b. The V210 Event Detect LED flashes at the AGS cycle rate, indicating that the AGS T0 and User event codes are being detected.

```
-> Xinit
0x170e5a0 (tShell): New dtcnMaster: pDtcnMaster=0x177ee70; base32Sram=0xc2900000, lenSram=0x100000
0x170e5a0 (tShell): Config dtcnMaster: pDtcnMaster=0x177ee70; baseSram=0xc2900000, lenSram=0x100000:
VMEIDBNLV210      A 0020      May 6 2004....15:16:43.....
0x170e5a0 (tShell): dtcnMaster args: irqLevel =0x3; intrptStsId=0x50
0x170e5a0 (tShell): dtcnMaster config block @ 0xc2a00000
0x170e5a0 (tShell): Created /dtcnF0/ OK
0x170e5a0 (tShell): Created /dtcnF1/ OK
0x170e5a0 (tShell): Created /dtcnF2/ OK
0x170e5a0 (tShell): Created /dtcnF3/ OK

DUMPING new Dtcn2Master

dtcnMaster dtcnFA dtcnMsgQ=0 msgs
baseShrmemA32 = 0xc2900000, lenSram = 0x100000
V210 identifier: VMEIDBNLV210      A 0020      May 6 2004....15:16:43.....
irbBlock = 0xc2b00c00, iebBlock = 0xc2b00800
baseSoftRegsA32 = 0xc2b00700, irqLevel = 3
From config regs: maxPpmUsers=4 maxDtcnChans=4 irqLevel=3 intrptStsId=0x50
From config regs: dtcnChan1TO=200 dtcnChan2TO=200 dtcnChan3TO=200 dtcnChan4TO=200
From config regs: fiducialTLEVcd=0x14 UsrResetTLEVcd=0x15

DTCN2_DEV for line 1: /dtcnF0/ FilesOpen= 0, FilesSched= 0, rmb's= 0; ExecNotSched=0
DTCN2_DEV for line 2: /dtcnF1/ FilesOpen= 0, FilesSched= 0, rmb's= 0; ExecNotSched=0
DTCN2_DEV for line 3: /dtcnF2/ FilesOpen= 0, FilesSched= 0, rmb's= 0; ExecNotSched=0
DTCN2_DEV for line 4: /dtcnF3/ FilesOpen= 0, FilesSched= 0, rmb's= 0; ExecNotSched=0
pendIntEntryIndex = 0, pendIntExtrIndex = 0, irbUseIndex=0 intrptSts=0x5
intrptCnt = 0
intrptCnts(0,1,2,3,4) = 0 0 0 0 0
```

Event Mask Table:

```
0x000: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
0x10: 0 0 0 0 1 1 1 1 1 0 0 0 0 0 0 0  
0x20: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
0x30: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
0x40: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
0x50: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
0x60: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
0x70: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
0x80: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
0x90: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
0xa0: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
0xb0: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
0xcc: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
0xd0: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
0xe0: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
0xf0: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

```
status      bytes      blocks      avg block      max block
-----  -----  -----  -----
current
    free      983024          1      983024      983024
    no allocated blocks
cumulative
    no allocated blocks
value = 0 = 0x0
```

10. Enter the following commands to open datacon channel 1, prepare a buffer of 10 words for writing, execute 10 datacon writes and reads, and close channel 1.

```
-> Xopen 1
-> Xwrite 10
-> Xread
-> Xclose 1
```

Expected results:

- a. The output produced is similar to the output shown below. Response duration greater than 400 microseconds indicates a datacon timeout. This is expected on unused Hulliger bucket addresses. The lines shown below with duration of 251 and 254 indicate valid Hulliger bucket hardware responses.
- b. The V210 Datacon Active LED flashes when the Xread command is executed, indicating that Datacon words were transmitted on the line.

```
-> Xopen 1
0x170e5a0 (tShell): Have opened /dtcnF0/xtest; fd = 35
value = 32 = 0x20 = ''
-> Xwrite 10
0 0x20000000
1 0x20800000
2 0x21000000
3 0x21800000
4 0x22000000
5 0x22800000
6 0x23000000
7 0x23800000
8 0x24000000
9 0x24800000
0x170e5a0 (tShell): X file (fd=35) written: 10 words => 40 bytes; write() returned 40
value = 32 = 0x20 = ''
-> Xread
0x170e5a0 (tShell): Xread: xLen=10; tried to read 88 bytes, & got 88 bytes
0: 0x0030a310 0x0030b1e8 duration=3800
2: 0x7ff80050 0x0401a40b duration=251
4: 0x7ff80050 0x0401a509 duration=254
6: 0000000000 0x0201a6a3 duration=410
8: 0000000000 0x0201a83f duration=412
10: 0000000000 0x0201a9da duration=411
12: 0000000000 0x0201ab76 duration=412
14: 0000000000 0x0201ad11 duration=411
16: 0000000000 0x0201aeac duration=411
18: 0000000000 0x0201b045 duration=409
20: 0000000000 0x0201b1e0 duration=411
value = 39 = 0x27 = ''
-> Xclose 1
value = 0 = 0x0
->
```

11. Connect the coax cable to each of the 4 Datacon Driver Assembly Lines and repeat the previous test.

Line 2

```
-> Xopen 2
-> Xwrite 10
-> Xread
-> Xclose 2
```

Line 3

```
-> Xopen 3  
-> Xwrite 10  
-> Xread  
-> Xclose 3
```

Line 4

```
-> Xopen 4  
-> Xwrite 10  
-> Xread  
-> Xclose 4
```

Connect the coax cable to Line 1 after completing these tests.

12. Enter the following command to configure the datacon master to execute 100 transmissions on every 1 Hz AGS event (event code 76) to datacon line 1 address 0x40, and repeat for 200 consecutive events. Status will be printed every 10th execution.

```
-> Xstress1 1, 0x40, 76, 100, 200, 10
```

Expected results:

- a. The output produced is similar to the output shown below. Zero data errors are expected.
- b. The V210 Datacon Active LED flashes every 1 second, indicating that the transmission is executed.

```
-> Xstress1 1, 0x40, 76, 100, 200, 10  
Stress1 Executing 200 repetitions of 100-xmission blocks  
For line 1, address 0x40, TimeLineCode 0x4c  
  
Hulliger at 0x40 has been put into loopback mode  
  
dumpDtcnFile: (@0x0177e988) /dtcnF0/stress1 on line 1 of master dtcnFA  
dumpDtcnFile: ppmUser=0 evCode=0 rmbRptCnt=0 irbNdx=-1, schedFlag=0  
rewriteWhileSched=0, writeMdbIndex=0  
multiMdbLimit=-1, activeMdbIndex=-1, execMdbIndex=-1  
dumpMdbRec[0]: pMdb=0xc2bffe98(0x100ffe98), pSmb=0xc2bffe88(0x100ffe88)  
dumpMdbRec[0]: smbWordsAlloc/Wrote=2/1, mdbReady=0, rmbIndexReading=-1  
dumpMdbRec[0]: pRmb[0] {addr(MstrAddr)/Rdy}: 0xc2bffe70(0x100ffe70)/-1  
dumpMdbRec[0]: Mdb: mdbNdx=0, smbElemCount=1, rmbRepeatCount=0,  
rmbRepeatIndex=0  
dumpMdbRec[0]: Mdb: pSmb=0x100ffe88  
dumpMdbRec[0]: Mdb: pRmb[0]=0x100ffe70  
  
/dtcnF0/stress1 fd=37
```

```
dumpDtcnFile: (@0x0177e988) /dtcnF0/stress1 on line 1 of master dtcnFA  
dumpDtcnFile: ppmUser=0 evCode=0 rmbRptCnt=-1 irbNdx=-1, schedFlag=0  
rewriteWhileSched=0, writeMdbIndex=0  
multiMdbLimit=-1, activeMdbIndex=-1, execMdbIndex=-1  
dumpMdbRec[0]: pMdb=0xc2bffe98(0x100ffe98), pSmb=0xc2bfffef8(0x100ffef8)
```

```

dumpMdbRec[0]: smbWordsAlloc/Wrote=101/100, mdbReady=0, rmbIndexReading=-1
dumpMdbRec[0]: Mdb: mdbNdx=0, smbElemCount=1, rmbRepeatCount=-1,
rmbRepeatIndex=0
dumpMdbRec[0]: Mdb: pSmb=0x100ffcf8

      block  block  block  block  block  block  xmsn  xmsn  xmsn  xmsn
line addr code  reps   DAC    DNA   NOR   ILL   DAC    DNA   ILL   DATERR
  1 0x40 0x4c    1     0     0     1     0     0     0     0     0     0
  1 0x40 0x4c   11     0     0    11     0     0     0     0     0     0
  1 0x40 0x4c   21     0     0    21     0     0     0     0     0     0
  1 0x40 0x4c   31     0     0    31     0     0     0     0     0     0
  1 0x40 0x4c   41     0     0    41     0     0     0     0     0     0
  1 0x40 0x4c   51     0     0    51     0     0     0     0     0     0
  1 0x40 0x4c   61     0     0    61     0     0     0     0     0     0
  1 0x40 0x4c   71     0     0    71     0     0     0     0     0     0
  1 0x40 0x4c   81     0     0    81     0     0     0     0     0     0
  1 0x40 0x4c   91     0     0    91     0     0     0     0     0     0
  1 0x40 0x4c  101     0     0   101     0     0     0     0     0     0
  1 0x40 0x4c  111     0     0   111     0     0     0     0     0     0
  1 0x40 0x4c  121     0     0   121     0     0     0     0     0     0
  1 0x40 0x4c  131     0     0   131     0     0     0     0     0     0
  1 0x40 0x4c  141     0     0   141     0     0     0     0     0     0
  1 0x40 0x4c  151     0     0   151     0     0     0     0     0     0
  1 0x40 0x4c  161     0     0   161     0     0     0     0     0     0
  1 0x40 0x4c  171     0     0   171     0     0     0     0     0     0
  1 0x40 0x4c  181     0     0   181     0     0     0     0     0     0
  1 0x40 0x4c  191     0     0   191     0     0     0     0     0     0

      block  block  block  block  block  block  xmsn  xmsn  xmsn  xmsn
line addr code  reps   DAC    DNA   NOR   ILL   DAC    DNA   ILL   DATERR
  1 0x40 0x4c   200     0     0   200     0     0     0     0     0     0
value = 78 = 0x4e = 'N'
->

```

13. Connect the coax cable to each of the 4 Datacon Driver Assembly Lines and repeat the previous test.

Line 2

```
-> Xstressl 2, 0x40, 76, 100, 200, 10
```

Line 3

```
-> Xstressl 3, 0x40, 76, 100, 200, 10
```

Line 4

```
-> Xstressl 4, 0x40, 76, 100, 200, 10
```

Connect the coax cable to Line 1 after completing these tests.