



CHARON-VAX application note

AN-032 Configuring devices on the Qbus of a VAX or CHARON-VAX

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When implementing CHARON-VAX, it may not be possible to implement exactly the same configuration as was used on the original hardware VAX. In case of difficulty, configure CHARON-VAX by specifying the exact addresses and vectors where necessary in the CHARON configuration file. For details on the configuration of peripheral device addresses and vectors refer to the VAX peripheral option manuals.

If you move a system disk from an existing system to CHARON-VAX/Industrial without modification, you must identify the device / controller addresses and vectors and set them to the same value as your VAX operating system used before. For instance, in VMS you can use the MCR SYSGEN (or MCR SYSMAN) and the show / configuration command to identify the values.

But if you are reconfiguring a VAX fortunately, CHARON-VAX can be used to calculate these addresses as follows:

Decide what kinds of QBUS devices are needed and how many of them should be present. For example, suppose four (4) RQDX3 controllers, two (2) DELQA Ethernet controllers, and three (3) DHV11 controllers are needed.

For the next step configure CHARON-VAX with only a console terminal. Start CHARON and wait until >>> prompt is displayed:

```
+=====
|
|KA650-A V5.3, VMB 2.7
|Performing normal system tests.
|40..39..38..37..36..35..34..33..32..31..30..29..28..27..26..25..
|24..23..22..21..20..19..18..17..16..15..14..13..12..11..10..09..
|08..07..06..05..04..03..
|Tests completed.
|>>>_
...
+=====
```

Enter the command "CONFIGURE":

```
+=====
...
|08..07..06..05..04..03..
|Tests completed.
|>>>CONFIGURE
|Enter device configuration, HELP, or EXIT
|Device,Number? HELP
```

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```
|Devices:
| LPV11      KXJ11      DLV11J      DZQ11      DZV11      DFA01
| RLV12      TSV05      RXV21      DRV11W      DRV11B      DPV11
| DMV11      DELQA      DEQNA      DESQA      RQDX3      KDA50
| RRD50      RQC25      KFQSA-DISK TQK50      TQK70      TU81E
| RV20       KFQSA-TAPE KMV11      IEQ11      DHQ11      DHV11
| CXA16      CXB16      CXY08      VCB01      QVSS       LNV11
| LNV21      QPSS      DSV11      ADV11C      AAV11C      AXV11C
| K WV11C    ADV11D      AAV11D      VCB02      QDSS       DRV11J
| DRQ3B      VSV21      IBQ01      IDV11A      IDV11B      IDV11C
| IDV11D     IAV11A      IAV11B      MIRA       ADQ32      DTC04
| DESNA      IGQ11
```

```
|Numbers:
```

```
| 1 to 255, default is 1
```

```
|Device,Number? _
```

```
+=====
Enter your configuration followed by the command EXIT:
```

```
+=====
...
| IDV11D     IAV11A      IAV11B      MIRA       ADQ32      DTC04
| DESNA      IGQ11
```

```
|Numbers:
```

```
| 1 to 255, default is 1
```

```
|Device,Number? RQDX3,4
```

```
|Device,Number? DELQA,2
```

```
|Device,Number? DHV11,3
```

```
|Device,Number? exit
```

```
|Address/Vector Assignments
```

```
| -774440/120 DELQA
```

```
| -774460/300 DELQA
```

```
| -772150/154 RQDX3
```

```
| -760334/304 RQDX3
```

```
| -760340/310 RQDX3
```

```
| -760344/314 RQDX3
```

```
| -760500/320 DHV11
```

```
| -760520/330 DHV11
```

```
| -760540/340 DHV11
```

```
|>>>_
```

```
+=====
It is possible to see addresses and vectors, which need to be put into the configuration file,
for each of the required devices.
```

Note:

1. Some QBUS devices are not able to set an interrupt vector. For such Devices, VMS sets the vector programmatically when initializing the device. For example, RQDX3.
2. The addresses above are 16-bit wide, but CHARON is able to understand 22-bit addresses. Therefore, it is necessary to sign-extend them before writing into CFG file.
3. Numbers are octal, so attach "0" in the beginning.

For this example, the configuration file would be as follows:

```
load RQDX3/RQDX3 DUA address=017772150
load RQDX3/RQDX3 DUB address=017760334
load RQDX3/RQDX3 DUC address=017760340
load RQDX3/RQDX3 DUD address=017760344

load DELQA/DEQNA XQA address=017774440 vector=0120
load DELQA/DEQNA XQB address=017774460 vector=0300

load DHV11/DHV11 TXA address=017760500 vector=0320
load DHV11/DHV11 TXB address=017760520 vector=0330
load DHV11/DHV11 TXC address=017760540 vector=0340
```

Units must obviously be configured, but it is out of scope here.

Your copy of your VMS system may not automatically understand this configuration. It may be necessary to build a new VMS system from the original VMS media but if all the required elements are available in your VMS system, it may be possible to reconfigure by executing the commands.

```
$ SET DEF SYS$UPDATE
$ AUTOGEN GETDATA REBOOT
```

This application note is provided for information only to assist customers in dealing with complex configurations. This functionality described is standard VAX and VAX/VMS functionality and is not covered by CHARON-VAX support contracts.

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