

# SECTION 17

## VX4801 TO SM4801: 48 CH. TTL I/O

### SPECIFICATION COMPARISONS

| GENERAL SPECIFICATIONS                           | Tektronix VX4801   | VXI Technology SM4801                                    |
|--|--|--|
| <b>MODEL TYPE</b>                                | Isolated TTL I/O Module  | TTL I/O Module   |
| <b>CONFIGURATION</b>                             | 80 Channel, TTL I/O Lines  | 96 Channel, TTL I/O Lines                                |
| <b>INTERFACE TYPE</b>                            | Message Based, SCPI, IEEE 488.2  | Register Based   |
| <b>VXI REVISION LEVEL</b>                        | 1.4  | 1.4  |
| <b>INSTRUMENT DRIVERS</b>                        | WIN framework (Rev. 4.0)<br>WIN95 framework (Rev. 4.0)<br>WINNT framework (Rev. 4.0) | WIN95 framework (Rev. 4.0)<br>WINNT framework (Rev. 4.0) |
| <b>MODULE SIZE</b>                               | Single-wide, C-size  | Single-wide, C-size                                      |
| ELECTRICAL SPECIFICATIONS                        |  |  |
| <b>OUTPUT HIGH VOLTAGE (<math>V_{OH}</math>)</b> | > 4.4 V  | > 4.5 V maximum  |
| <b>OUTPUT LOW VOLTAGE (<math>V_{OL}</math>)</b>  | < 0.4 V  | < 0.4 V @ 300 mA   |
| <b>OUTPUT LOW CURRENT (<math>I_{OL}</math>)</b>  | < 24 mA  | < 300 mA   |
| <b>INPUT HIGH VOLTAGE (<math>V_{IH}</math>)</b>  | > 2.0 V  | > 2.0 V  |
| <b>INPUT LOW VOLTAGE (<math>V_{IL}</math>)</b>   | > 0.8 V  | > 1.5 V  |
| <b>INPUT CURRENT</b>                             | 230 $\mu$ A maximum  | 100 $\mu$ A maximum                                      |
| <b>TRI-STATE LEAKAGE</b>                         | 0.5 $\mu$ A typical (5.0 $\mu$ A maximum)  | N/A  |
| <b>ISOLATION RESISTANCE</b>                      | > 100 x 10 <sup>6</sup>  | N/A  |
| <b>ISOLATION VOLTAGE</b>                         | > 500 V dc   | N/A  |

## INTERFACING TO THE MODULE

The SM4801 has one 160-pin high density ERNI connector on its front panel for I/O interfacing. A mating connector is shipped with the assembly. The outputs of the SM4801 do not go into tri-state mode. Tri-state mode is emulated by programming the bi-directional ports as inputs. **Also, it is important to note that the SM4801 data ports are not isolated.**

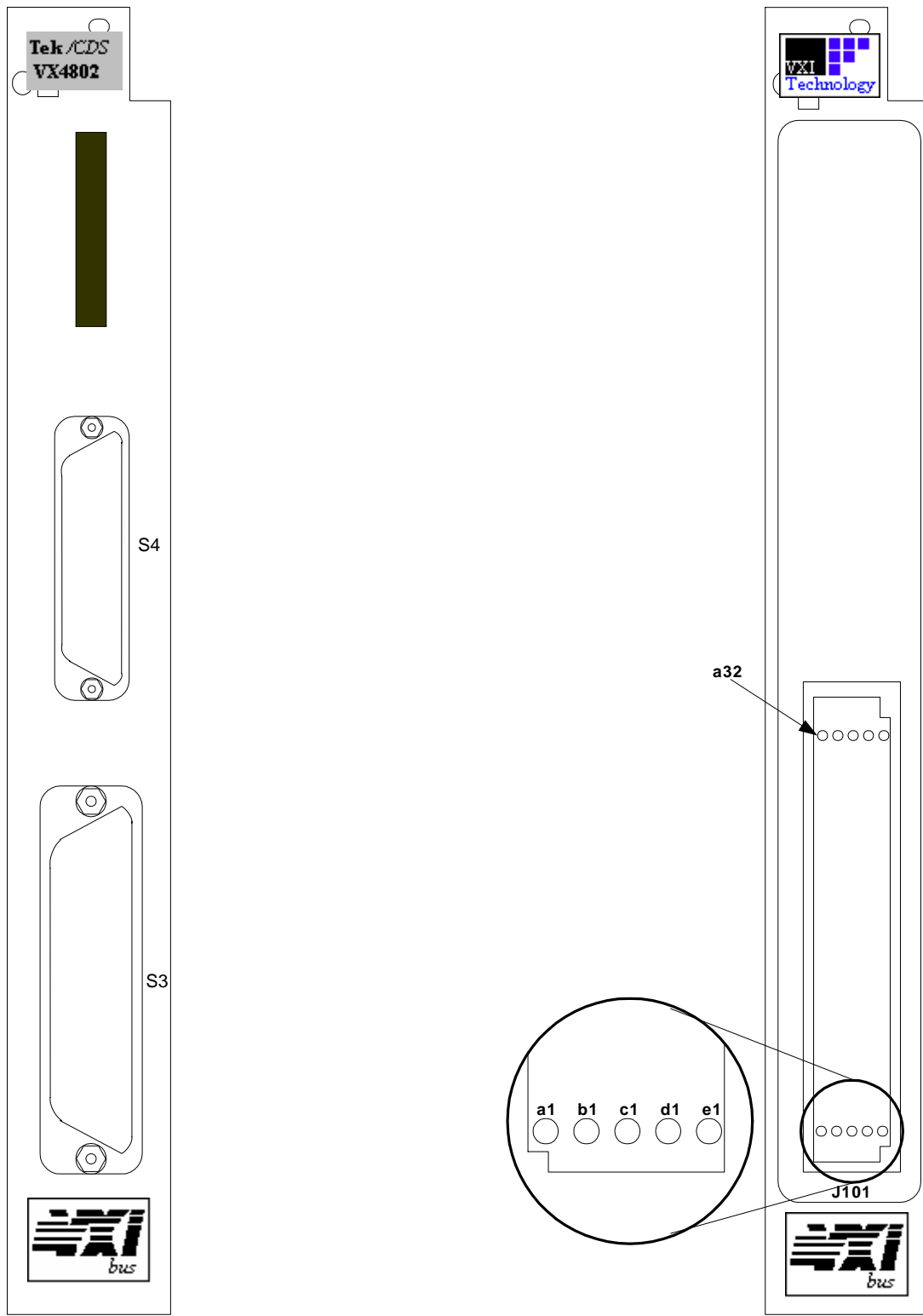
In many ATE applications, a termination panel for the instrumentation is utilized. This termination panel will have connectors that mate to the UUT or an intermediate test fixture. A termination panel may take the form of an Interconnect Assembly (ICA) made by manufacturers such as Virginia Panel or Macpanel. In either case, it is desirable to maintain the same I/O layout at the panel to avoid costly redesign of test fixturing or UUT cable assemblies.

VXI Technology offers a couple of options that prevent the need for any interface panel to UUT redesign as follows:

- wired funnel assemblies that mate directly to the SM4801 front panel
- custom cabling between SM4801 front panel and ICA/termination panel

For customers who plan on developing their own cabling between the SM4801 and the termination panel, this section provides a cross-reference pinout table between the VX4801 and the SM4801 in Tables 17-1 and 17-2.

FIGURE 17-1: PINOUT CROSS-REFERENCE (FRONT PANEL DIAGRAM) VX4801 TO SM4801



**TABLE 17-1: PINOUT CROSS-REFERENCE TABLE VX4801 TO SM4801 (I/O AND GND LINES)**

|      |                 | VX4801   | SM4801   |
|------|-----------------|--|--|
| Byte | Bit             | Pinout   | Pinout   |
| 0    | 0               | S3.7   | J100.A1  |
|      | 1               | S3.8   | J100.A2  |
|      | 2               | S3.9   | J100.A3  |
|      | 3               | S3.10  | J100.A4  |
|      | 4               | S3.11  | J100.A5  |
|      | 5               | S3.12  | J100.A6  |
|      | 6               | S3.13  | J100.A7  |
|      | 7               | S3.14  | J100.A8  |
| 1    | 0               | S3.20  | J100.A9  |
|      | 1               | S3.21  | J100.A10   |
|      | 2               | S3.22  | J100.A11   |
|      | 3               | S3.23  | J100.A12   |
|      | 4               | S3.24  | J100.A13   |
|      | 5               | S3.25  | J100.A14   |
|      | 6               | S3.26  | J100.A15   |
|      | 7               | S3.27  | J100.A16   |
| 2    | 0               | S3.30  | J100.B1  |
|      | 1               | S3.31  | J100.B2  |
|      | 2               | S3.32  | J100.B3  |
|      | 3               | S3.33  | J100.B4  |
|      | 4               | S3.34  | J100.B5  |
|      | 5               | S3.35  | J100.B6  |
|      | 6               | S3.36  | J100.B7  |
|      | 7               | S3.37  | J100.B8  |
|      | <b>Gnd Pins</b> | S3.3; S3.4; S3.15<br>S3.18; S3.28;<br>S3.29; S3.38; S3.40<br>S3.41; S3.50; | J100.D25; D26<br>J100.D27; D28<br>J100.D29; D30<br>J100.D31; D32 |

|      |                 | VX4801  | SM4801  |
|------|-----------------|---|---|
| Byte | Bit             | Pinout  | Pinout  |
| 3    | 0               | S3.42   | J100.B9   |
|      | 1               | S3.43   | J100.B10  |
|      | 2               | S3.44   | J100.B11  |
|      | 3               | S3.45   | J100.B12  |
|      | 4               | S3.46   | J100.B13  |
|      | 5               | S3.47   | J100.B14  |
|      | 6               | S3.48   | J100.B15  |
|      | 7               | S3.49   | J100.B16  |
| 4    | 0               | S4.3  | J100.C1   |
|      | 1               | S4.4  | J100.C2   |
|      | 2               | S4.5  | J100.C3   |
|      | 3               | S4.6  | J100.C4   |
|      | 4               | S4.7  | J100.C5   |
|      | 5               | S4.8  | J100.C6   |
|      | 6               | S4.9  | J100.C7   |
|      | 7               | S4.10   | J100.C8   |
| 5    | 0               | S4.16   | J100.C9   |
|      | 1               | S4.17   | J100.C10  |
|      | 2               | S4.18   | J100.C11  |
|      | 3               | S4.19   | J100.C12  |
|      | 4               | S4.20   | J100.C13  |
|      | 5               | S4.21   | J100.C14  |
|      | 6               | S4.22   | J100.C15  |
|      | 7               | S4.23   | J100.C16  |
|      | <b>Gnd Pins</b> | S4.1; S4.2; S4.11<br>S4.14; S4.15<br>S4.24; S4.25 | J100.E27; E28<br>J100.E29; E30<br>J100.E31; E32 |

**TABLE 17-2: PINOUT CROSS-REFERENCE TABLE VX4801 TO SM4801  
(HANDSHAKE/TRI-STATE LINES)**

| SIGNAL             | VX4801 | SM4801   |
|--------------------|--------|----------|
| Ready for Data Out | S3.1   | J100.D2  |
| Data Ready In      | S3.2   | J100.E2  |
| Data Available In  | S3.5   | J100.D6  |
| Data Ack Out       | S3.6   | J100.E6  |
| ETS 0              | S3.16  | J100.D3  |
| ETS 1              | S3.19  | J100.E3  |
| ETS 2              | S3.39  | J100.D7  |
| ETS 3              | S3.17  | J100.E7  |
| ETS 4              | S4.12  | J100.D11 |
| ETS 5              | S4.13  | J100.E11 |

## VXIPLUG&PLAY COMMON FUNCTION CALLS

### *Rehosting*

To replace obsolete components typically requires a great deal of software effort because there are often many test program sets that need to be changed. VXI Technology has greatly simplified this task by developing a translation driver set for the VX4801. The translation driver takes function calls to the VX4801 and converts them to SM4801 calls. The result is that virtually any code written to operate with the VX4801 can be used, without modification, when an SM4801 is installed in its place.

All commonly used functions are supported in the translation driver set. For those functions not supported, VTI includes the translation driver source code for custom modification or will add the functions by request. A list of all tkvx4801 functions supported in the translation driver set are listed in the following table.

**TABLE 17-3: TKVX4801\_32.DLL: SM4801 TRANSLATION DRIVER SET, SUPPORTED FUNCTIONS**

| Class or Window |                       |          | Function                           |
|-----------------|-----------------------|----------|------------------------------------|
| Initialize      |                       |          | tkvx4801_init                      |
| Auto Initialize |                       |          | tkvx4801_autoConnectToFirst        |
| Auto Initialize |                       |          | tkvx4801_autoConnectToSlot         |
| Auto Initialize |                       |          | tkvx4801_autoConnectToLA           |
| Auto Initialize |                       |          | tkvx4801_autoConnectToAll          |
| Measure         | Configure Measurement |          | tkvx4801_setByteMode               |
| Measure         | Configure Measurement |          | tkvx4801_setUpdateCondition        |
| Measure         | Configure Measurement |          | tkvx4801_setTristateMode           |
| Measure         | Configure Measurement |          | tkvx4801_externalTristateEnable    |
| Measure         | Configure Measurement |          | tkvx4801_setPulseStrobeSense       |
| Measure         | Read                  | Initiate | tkvx4801_defineMask                |
| Measure         | Read                  | Initiate | tkvx4801_setOutputData             |
| Measure         | Read                  | Initiate | tkvx4801_outputData                |
| Measure         | Read                  | Fetch    | tkvx4801_queryStatus               |
| Measure         | Read                  | Fetch    | tkvx4801_readInputs                |
| Measure         | Read                  | Fetch    | tkvx4801_readByteData              |
| Utility         | Error Handling        |          | tkvx4801_error_query               |
| Utility         | Error Handling        |          | tkvx4801_error_message             |
| Utility         | Status                |          | tkvx4801_queryEnableStatus         |
| Utility         | Status                |          | tkvx4801_queryRelayDriverStatus    |
| Utility         | Status                |          | tkvx4801_queryRelayDriverStatusAll |
| Utility         | Status                |          | tkvx4801_queryTriggerConfig        |
| Utility         | Status                |          | tkvx4801_queryTriggerOccurance     |
| Utility         |                       |          | tkvx4801_reset                     |
| Utility         |                       |          | tkvx4801_self_test                 |
| Utility         |                       |          | tkvx4801_revision_query            |
| Utility         |                       |          | tkvx4801_getSlotList               |
| Utility         |                       |          | tkvx4801_getSlotandLAList          |
| Utility         |                       |          | tkvx4801_getSlotNumber             |
| Utility         |                       |          | tkvx4801_getLogicalAddress         |
| Utility         |                       |          | tkvx4801_getInstrDesc              |
| Utility         |                       |          | tkvx4801_getManufacturerID         |
| Utility         |                       |          | tkvx4801_getModelCode              |
| Utility         |                       |          | tkvx4801_getVisaRev                |
| Utility         |                       |          | tkvx4801_sleep                     |
| Close           |                       |          | tkvx4801_close                     |

***Exceptions***

- 1.) Set Tri-State level is not supported. The active levels for tri-state control on the SM4801 are not selectable. A call to this function will return an error.
- 2.) Simultaneous Input/Output strobing is not supported.
- 3.) Enable/Disable Interrupt is currently not supported.
- 4.) The QueryStatus function is currently not supported.