All IO signals in the WFD, with the exception of the PECL A/D outputs, use DCI (digital controlled impedance). DCI means that all signals have 50 ohm series or shunt terminating impedances. In addition to DCI, most signals also follow the HSTL II standard, or more exactly the “extended” HSTL standard. HSTL is a standard that uses relatively small signal swings, typically ± 0.1V about some reference voltage (0.9V in the case of “extended” HSTL).

The FIFO’s also adhere to the HSTL standard, but they do not include internal series or shunt terminations. Strictly speaking, the FIFO output signals follow the HSTL I rather than HSTL II standard, but this is not a problem.

Since the FIFO’s do not include termination resistances, signals from the FPGA’s to the FIFO’s use the LVDCI_18 standard. This standard specifies HSTL type signals with series 50 ohm resistances; thus, even though the FIFO’s have no terminating resistors, the series drive resistances absorb signal reflections from the FIFO’s, eliminating ringing.

Outputs from the FIFO’s follow the HSTL I standard, meaning that these signals drive ± 8 mA. FPGA’s that receive FIFO outputs follow the HSTL_HSTL_DC18 specification, which means they have 50 ohm termination resistances to the required 0.9V reference voltage so no signal reflections occur.

Other WFD signals, such as those between FPGA’s use the HSTL_HSTL_DC18 standard, meaning that they have parallel termination resistors at both the transmitting and receiving ends of signal paths. The drive levels for these signals are ± 16 mA, since the double terminations amount to 25 ohm loads rather than the 50 ohms for single terminations, so twice the drive current is needed in order to obtain the same signal swing.
A few signals follow the LVDCI\textsubscript{33} standard, which means LVTTL drive levels with 50 ohm series drive resistances to absorb any signal reflections.

The attached figure shows the four main equivalent circuits for signals interconnecting the FPGA’s and FIFO’s.
Equivalent circuits for interconnections