

## SPI-3 Assumptions for the receiver and driver levels

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These are the assumptions that the receiver timing diagrams and driver levels are based on for SPI-3. These were all discussed in the May 1999 meetings which generated the final versions of the timing diagrams and drive levels.

1. All measurements are at the device connector.
2. Receivers have a +/-30 mV DC offset.
3. Receivers have nodes inside that are charge that effect the propagation and SKEW, fast slew rates have more skew than slower rise time, 2 ns slew rate from -100 mV to +100 MV or the opposite appears to be the point Skews come into the SPI-3 timing. This would only happen with short distances between the target and Initiator which would require less cable skew.
4. Note: if receiver levels are not over 100 mV (absolute) start, the skew and propagation time will be effected. The internal nodes start to discharge making that channel much faster. Hot plug coincident with crosstalk may cause signal levels below 100 mV at the transition time.
5. Receiver maximum slew rate from -100 mV to +100 mV or the opposite is 3 ns.
6. Receivers require the input signal to start less than -100 mV for at least 1.25 ns to more than +100 mV for at least 1.25 ns for a valid transition.
7. The receivers will tolerate signal levels down to 30 mV between 100 mV - 1.25 ns end of transition to the start of the next transition 100 mV - 1.25 ns requirement.
8. Receivers require 4 to 1 maximum difference in signal levels, which should never be possible with the restrictions on driver balance in Annex A figure A.2.
9. Receivers should be simulated to the minimum and 4 to1 ratio using the receiver mask developed for 99-127r6. Transitions should be simulated as fast rise time at the start and at the end of the transition and a 3 ns slope from -100 mV to 100 mV.
10. The calculation for the driver power starts with the 100 mV receiver requirement and adds 60 mV for near end crosstalk. Without crosstalk, the receivers shall see 160 mV signal levels.
11. Cable Loss, Differential Noise, Terminator bias difference, Reflections - doubles the signal level requiring a minimum of 320 mV driver levels and 800 mV maximum driver levels.
12. Note: it is a system requirement, cables, backplanes and loads to guarantee that with 320 mV driver signals, 160 mV without crosstalk will appear at every device connector.