SHORT DISTANCE DIFFERENTIAL SCSI TRANSCEIVER

ADVANTAGES:

- HIGHER DATA RATE - CAN CLOCK DATA SOONER THAN SINGLE-ENDED (SE).
- LESS SENSITIVE THAN SE TO CABLE AND TERM POWER PROBLEMS.
- FAST SCSI AT 6 METERS?
- SIMPLE, CHEAP AND EASY TO INTEGRATE. ADDS ONLY 11 PINS.
- BACKWARD COMPATIBLE WITH SE.

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SHORT DISTANCE DIFFERENTIAL SCSI TRANSCEIVER

DISADVANTAGES:

- LIMITED TO SHORT CABLES.
- WAVEFORMS "UGLY"
SHORT DISTANCE DIFFERENTIAL SCSI TRANSCEIVER

TRANSCEIVER PARTITIONING AND CHARACTERISTICS

DATA AND PARITY LINES (9)
- COMPLIMENTARY OPEN COLLECTOR DRIVER.
- DIFFERENTIAL RECEIVER.

REQUEST AND ACKNOWLEDGE LINES (2)
- ACTIVE PULL-UP AND PULL-DOWN DIFF. DRIVER (RS-422 TYPE).
- DIFFERENTIAL RECEIVER.

CONTROL LINES (7)
- SINGLE-ENDED DRIVER AND RECEIVER (CURRENT SPECIFICATION).

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SINGLE-ENDED (SE) CABLE PIN ASSIGNMENTS ALLOW EXPANSION TO DIFFERENTIAL AND BACKWARD COMPATABILITY.

- ODD LINES (EXCEPT #25) ARE GROUNDED ON SE CABLE.

- CONVERT ADJACENT GROUND LINE TO SECOND DIFFERENTIAL LINE FOR A DIFFERENTIAL SYSTEM.

- FOR BACKWARD COMPATABILITY, DESIGN DIFFERENTIAL RECEIVER HAVING TTL THRESHOLD WHEN INVERTING INPUT IS OPEN. (THRESHOLD COULD ADJUST FOR OPTIMUM SE NOISE MARGIN).

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SINGLE-ENDED SCSI:

CONVERTED TO DIFFERENTIAL SCSI:

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CIRCUIT DIAGRAM: ONE CHANNEL, DATA AND PARITY LINE TYPE.
SHORT DISTANCE DIFFERENTIAL SCSI TRANSCEIVER

BENCH TEST - FAST SCSI DATA LINE (100nS PULSE WIDTH)

PHOTO 1

PHOTO 2

3 METERS

3 METERS

PSUEDO RANDOM DATA PATTERN

WORST CASE POSITION

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SHORT DISTANCE DIFFERENTIAL SCSI TRANSCEIVER

INTERFACING SINGLE-ENDED TO DIFFERENTIAL SCSI

TO INTERFACE:
1) REMOVE 240/300 TERMINATOR AND REPLACE WITH SHORT TO GROUND.
2) REMOVE JUMPER BETWEEN INVERTING INPUT OF DIFFERENTIAL RECEIVER AND 240/300 TERMINATOR.
3) TOO MUCH TERM POWER IF DIFFERENTIAL DEVICE CONNECTED TO SINGLE-ENDED DEVICE BEFORE Performing STEPS (1) AND (2) ABOVE?

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