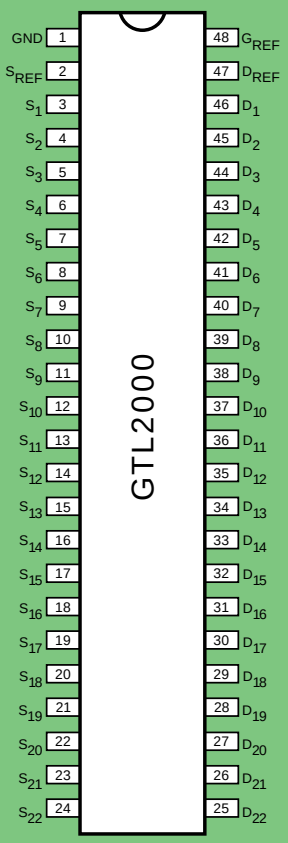
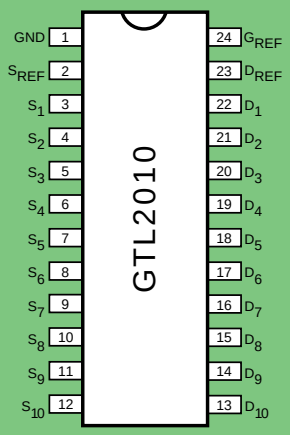
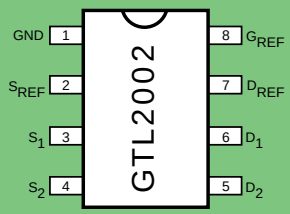
Philips Semiconductors Family of GTL Processor Voltage Clamps

GTL2000
22-Bit GTL Processor Voltage Clamp
GTL2010
10-Bit GTL Processor Voltage Clamp
GTL2002
2-Bit GTL Processor Voltage Clamp

The 22-bit (48-pin) GTL2000 voltage clamp, 10-bit (24-pin) GTL2010 voltage clamp, and the 2-bit (8-pin) GTL2002 facilitate open-drain voltage level shifting.







Part Type Description

The Philips family of Gunning Transceiver Logic (GTL) Voltage Clamps is used for high-speed interfacing and translation between different voltage levels. Unlike level shifting bus switches, which are limited to two fixed voltages (e.g., 5 V and 3.3 V), the GTL2000, GTL2010, and GTL2002 can translate any voltage to any other voltage. As is the case with any open-drain input or output, these GTL devices require pull-ups (e.g., 100Ω resistors).

The GTL2000 is a 22-bit processor voltage clamp and open-drain voltage level shifter. The GTL2010 is a 10-bit processor voltage clamp and open-drain voltage level shifter. The GTL2002 is a 2-bit processor voltage clamp and open-drain voltage level translator.

One application of these GTL Processor Voltage Clamp devices is the Pentium® III CPU transfer card where processor sideband (legacy I/O) signals are level shifted from 2.5 V to 1.5 V. The signals that are translated are as follows:

Legacy I/O

1.	A20M#	(IN)	12.	FERR#	(OUT)
2.	IGNNE#	(IN)	13.	IERR#	(OUT)
3.	INTR/LINT0	(IN)	14.	THERMTRIP#	(OUT)
4.	NMI/LINT1	(IN)	15.	APIC PICD1	(I/O)
5.	SMI#	(IN)	16.	APIC PICD0	(I/O)
6.	INIT#	(IN)	17.	ITP TCK	(IN)
7.	FLUSH#	(IN)	18.	ITP TDI	(IN)
8.	PREQ#	(IN)	19.	ITP TMS	(IN)
9.	SLP#	(IN)	20.	ITP TRST#	(IN)
10.	STPCLK#	(IN)	21.	ITP TDO	(OUT)
11.	PWRGOOD	(IN)			

GTL2000 Advantages

- Supports 22-bit open-drain voltage level shifting
- 1.5 V to 5.0 V operation
- 6.5Ω typical R_{ON} switch connection
- 1.5 ns propagation delay
- 7.5 pF channel (off-state capacitance)
- 48-pin SSOP package

GTL2010 Advantages

- Supports 10-bit open-drain voltage level shifting
- 1.5 V to 5.0 V operation
- 6.5Ω typical R_{ON} switch connection
- 1.5 ns propagation delay
- 7.5 pF channel (off-state capacitance)
- 24-pin TSSOP package

GTL2002 Advantages

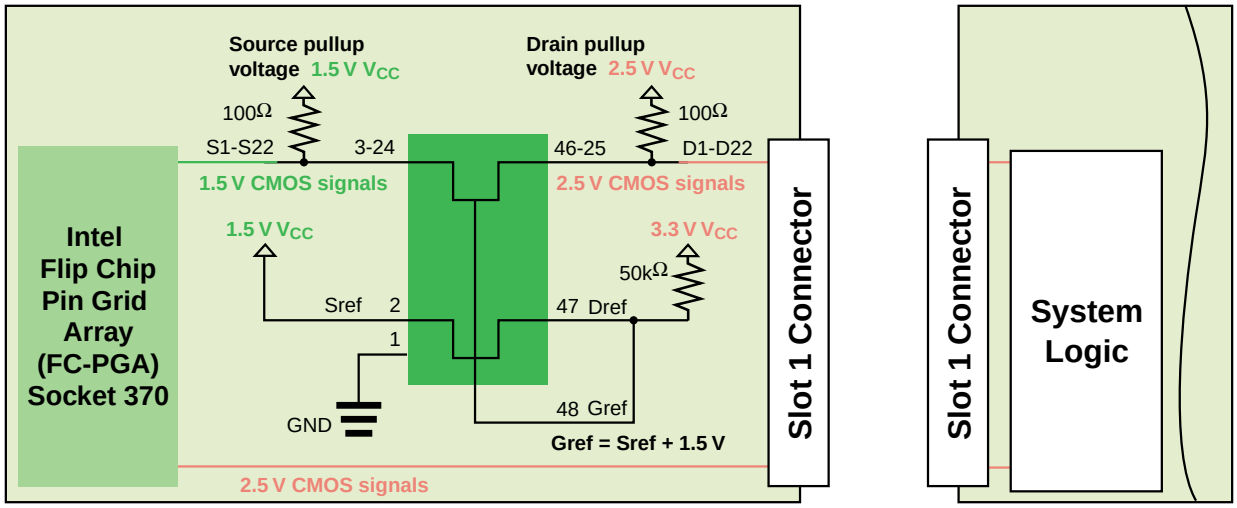
- Supports 2-bit open-drain voltage level shifting
- 1.5 V to 5.0 V operation
- 6.5Ω typical R_{ON} switch connection
- 1.5 ns propagation delay
- 7.5 pF channel (off-state capacitance)
- 8-pin TSSOP package

GTL2000
22-Bit GTL Processor
Voltage Clamp

GTL2010
10-Bit GTL Processor
Voltage Clamp

GTL2002
2-Bit GTL Processor
Voltage Clamp

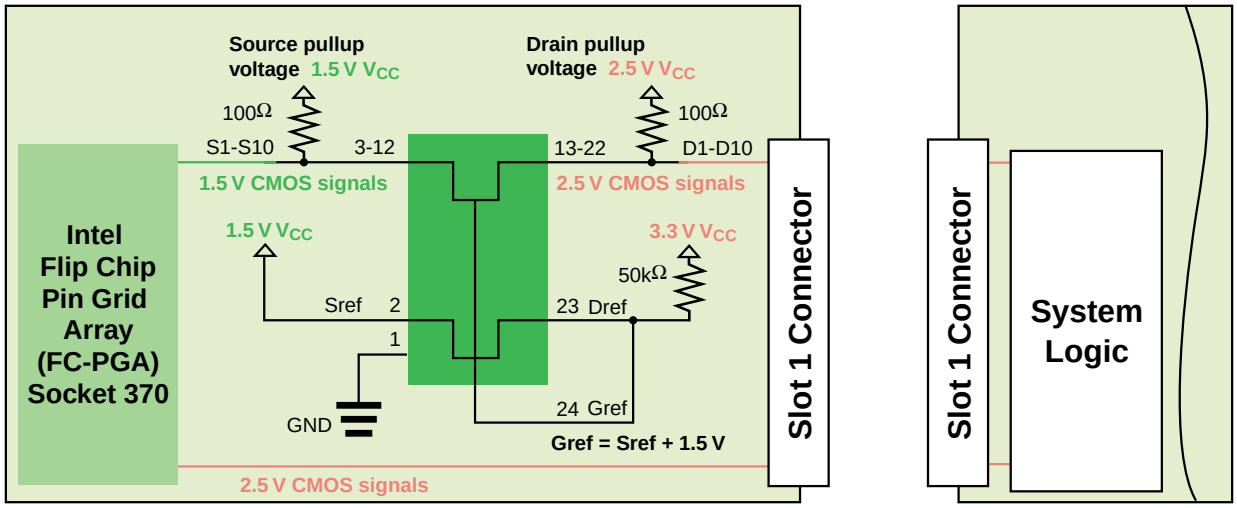
GTL2000 22-Bit GTL Processor Voltage Clamp
for legacy I/O voltage level shifting



CPU Cartridge Transfer Card

Motherboard

GTL2010 10-Bit GTL Processor Voltage Clamp
for legacy I/O voltage level shifting



CPU Cartridge Transfer Card

Motherboard

For more information, contact your Philips Semiconductors distributor or www.philipslogic.com

North America
Tel: 1 800 234-7381
Internet:
www.philipslogic.com

Europe
Fax: +31 79 3685126

Asia
Fax: 886 2 2134-2941

Japan/Korea
Fax: +81-3-3740-5057
Internet (in Japanese):
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