OZ992

Intelligent Manager
Smart ACPI GPIO/SCI

FEATURES

- SMBus, version 1.0, Compliance
- Master mode function to interface with ACPI compliant embedded controller
- Support Pentium and x86-based designs
- Supported by default embedded controller firmware
- Accept up to 16 SCI inputs
- Programmable level or edge (falling and rising edge) triggered SCI inputs
- 20 possible edge-sensitive programmable General Purpose Inputs/Outputs per device
- Programmable addresses for cascading OZ992s
- 32KHz operating frequency
- Supports 3.3v or 5v supply
- LOW-power hardware-driven speaker alarm output
- Software programming kit available
- SMBALERT# and SMIEVENT outputs
- 8 programmable interrupt inputs for SMI event or SMBALERT#
- 8 Auto LED Flash(ALF) programmable outputs with 10% or 50% duty cycles

ORDERING INFORMATION

OZ992S - 28 pin SSOP

GENERAL DESCRIPTION

O_2Micro's OZ992 Smart ACPI/SCI (System Control Interrupt) General Purpose Input/Output unit allows OEMs to transform their legacy systems to ACPI compliant systems by supporting up to 16 extra SCI inputs. Regular core logic chipsets, such as the Intel 430TX/BX and ACPI compliant embedded controllers have limited allowance for the GPIO or SCI input signals for the system. The OZ992 provides a bridge between the chipsets and the rest of the system to allow system designers a cost-effective way to improvise for such a deficiency.

OZ992 provides up to 20 GPIO signals in regular SMB slave mode. In addition, the OZ992 allows up to 16 System Control Interrupt (SCI) input transitions to be written to the system's embedded controller in master mode. The OZ992 provides the perfect solution for leading notebook vendors to stay ahead of the competition.

The OZ992 is an SMBus 1.0 compliant ACPI GPIO with **16 Programmable General Purpose I/Os pins** flexible for a variety of functions such as programmable inputs/outputs, SMB/SMI interrupt service, power-saving, modularized hardware ID, and Auto LED Flash (ALF) status display. OZ992's other features include hardware-driven speaker alarm output.

As a Pentium and x86-based system compatible device, the OZ992 Smart ACPI GPIO is a highly cost-effective and practical solution for today's notebook and palmtop computers, pen-based data systems, personal digital assistants, and portable data-collection terminals.

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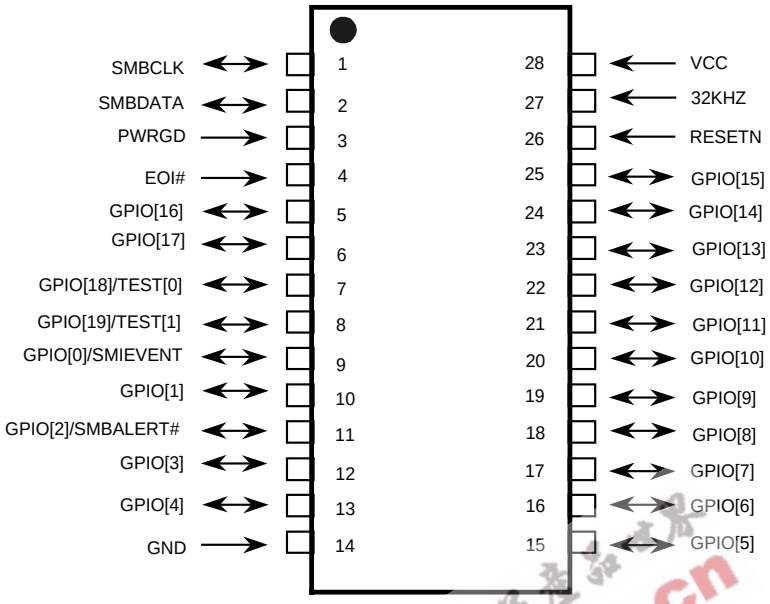
PIN DIAGRAM

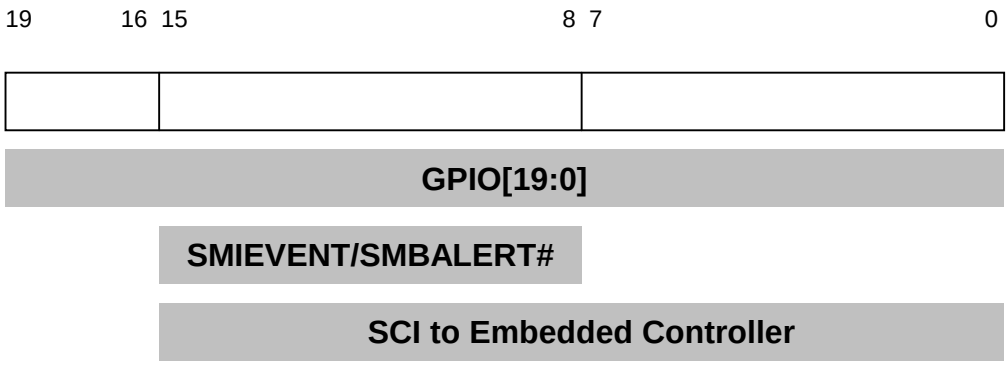


PIN DESCRIPTION

Name	Pin No.	Type	Input	Drive		Definition
SMBCLK	1	I	TTL	-		**SMBus Clock Input**
	SMBus Clock Input for SMBus protocol communication.					
SMBDATA	2	I/O	TTL	12mA		**SMBus Data Input/Output**
	SMBus Data Input/Output for SMBus protocol communication.					
PWRGD	3	I	TTL	-		**Host System Power Good**
	This pin indicates that the host system's power, including the Core Logic chipsets, is stable. Before the host system's power is stable, this input pin will tri-state all the output pins from OZ992.					
EOI#	4	I	TTL	-		**End of Interrupt**
	The embedded controller will signify the OZ992 when the activated SCI has been serviced. This pin is to be used with EC master mode only.					
GPIO[17:16]	[6:5]	I/O	TTL	4mA		**General Purpose I/Os**
	Fully programmable GPIOs that can be used for a variety of dedicated or specific functions. Pins GPIO[17:16] default as inputs. They are programmable to function as either GPI[17:16] inputs or GPO[17:16] outputs. Refer to GPIO[19:16] Config.1&2 Registers for more details and GPIO Config. Tables (section 5.0) for input/output selections.					
GPIO[19:18] / TEST[1:0]	[8:7]	I/O	TTL	4mA		**General Purpose I/Os**
	Fully programmable GPIOs that can be used for a variety of dedicated or specific functions. Pins GPIO[19:18]/TEST[1:0] default as inputs. They are programmable to function as either GPI[19:18] inputs or GPO[19:18] outputs. Refer to GPIO[19:16] Config.1&2 Registers for more details and GPIO Config. Tables (section 5.0) for input/output selections. During regular usage, pull-ups of *47KΩ* should be connected to GPIO[19:18]/TEST[1:0] to ensure the regular OZ992 operation. Alternative uses for GPIO[19:18] are as TEST[1:0], which provide 2 proprietary OZ992 test modes.					

Name	Pin No.	Type	Input	Drive		Definition
GPIO[0]/ SMIEVENT	9	I/O	TTL	4mA		**General Purpose I/O / SMIEVENT**
	Fully programmable GPIOs that can be used for a variety of dedicated or specific functions. Pin GPIO[0] has SMIEVENT output as an alternate function. GPIO[0] defaults. It is also programmable to function as GPI[0] input, GPO[0]output, ALF[0] output, or ID[0] input. Refer to GPIO Config.1&2 Registers for more details and GPIO Config. Tables (section 5.0) for input/output selections.					
GPIO[1]	10	I/O	TTL	4mA		**General Purpose I/O**
	Fully programmable GPIO that can be used for a variety of dedicated or specific functions. GPIO[1] pin defaults as input. It is also programmable to function as GPI[1] input, GPO[1]output, ALF[1] output, or ID[1] input. Refer to GPIO Config.1&2 Registers for more details and GPIO Config. Tables (section 5.0) for input/output selections.					
GPIO[2]/ SMBALERT#	11	I/O	TTL	4mA		**General Purpose I/O / SMBALERT#**
	Fully programmable GPIO that can be used for a variety of dedicated or specific functions. Pin GPIO[2] defaults as input. This pin, when programmed as an alternate function, can generate the SMBALERT# interrupt. SMBALERT# is an interrupt service request signal to the SMBus Host which can be generated by all devices connected to the OZ992. Pin GPIO[2]/SMBALERT# is also programmable to function as either GPI[2] input, GPO[2] output, ALF[2] output, or ID[2] input. Refer to GPIO Config.1&2 Registers for more details and GPIO Config. Tables (section 5.0) for I/O selections.					
GPIO[7:3]	[17:15], [13:12]	I/O	TTL	4mA		**General Purpose I/Os**
	Fully programmable GPIOs that can be used for a variety of dedicated or specific functions. GPIO[7:3] pins default as inputs. They are programmable to function as GPI[7:3] inputs, GPO[7:3] outputs, ALF[7:3] outputs, or ID[7:3] inputs. Refer to GPIO Config.1&2 Registers for more details and GPIO Config. Tables (section 5.0) for input/output selections.					
GPIO[15:8]	[25:18]	I/O	TTL	4mA		**General Purpose I/Os**
	Fully programmable GPIOs that can be used for a variety of dedicated or specific functions. Pins GPIO[15:8] default as inputs. Pins GPIO[15:8] as inputs are programmable to generate SMI/SMB interrupts. They are also programmable to function as GPI[15:8] inputs, GPO[15:8] outputs. Refer to GPIO Config.1&2 Registers for more details and GPIO Config. Tables (section 5.0) for input/output selections.					
RESETN	26	I	TTL	-		**Reset**
	OZ992 hardware reset. RESETN(active LOW) resets all registers to their default values. This pin is connected to the RC delay from the power supplied to OZ992.					
32KHz	27	I	TTL	-		**32KHz Clock Input**
	32KHz Clock Input.					
GND	14	GND	-	-		**Ground**
	Ground.					
VCC	28	PWR	-	-		**3.3V/5V Power Supply**
	3.3V or 5V Power Supply.					

GPIO Pins Alternate Usage



DC CHARACTERISTICS

DC TABLE FOR VCC = 5.0V ± 10%

Symbol	Parameter	Min	Max	Units
V_{CC}	Power Supply Voltage	4.5	5.5	V
V_{IH}	Input HIGH Voltage	3.5	-	V
V_{Il}	Input LOW Voltage	-	1.5	V
V_{OH}	Output HIGH Voltage	2.4	-	V
V_{OL}	Output LOW Voltage	-	0.4	V
I_{IL}	Maximum Input Leakage Current	-10	10	µA
I_{OL}	Maximum Output Leakage	-10	10	µA

DC TABLE FOR VCC = 3.3V ± 10%

Symbol	Parameter	Min	Max	Units
V_{CC}	Power Supply Voltage	3.0	3.6	V
V_{IH}	Input HIGH Voltage	2.3	-	V
V_{Il}	Input LOW Voltage	-	1	V
V_{OH}	Output HIGH Voltage	2.4	-	V
V_{OL}	Output LOW Voltage	-	0.4	V
I_{IL}	Maximum Input Leakage Current	-10	10	µA
I_{OL}	Maximum Output Leakage	-10	10	µA

CAPACITANCE

Symbol	Parameter	0 °C to 70°C	Units
C_{IN}	Maximum Input Capacitance	10	pF
C_{OUT}	Maximum Output Capacitance	10	pF
C_{IO}	Maximum I/O Capacitance	10	pF

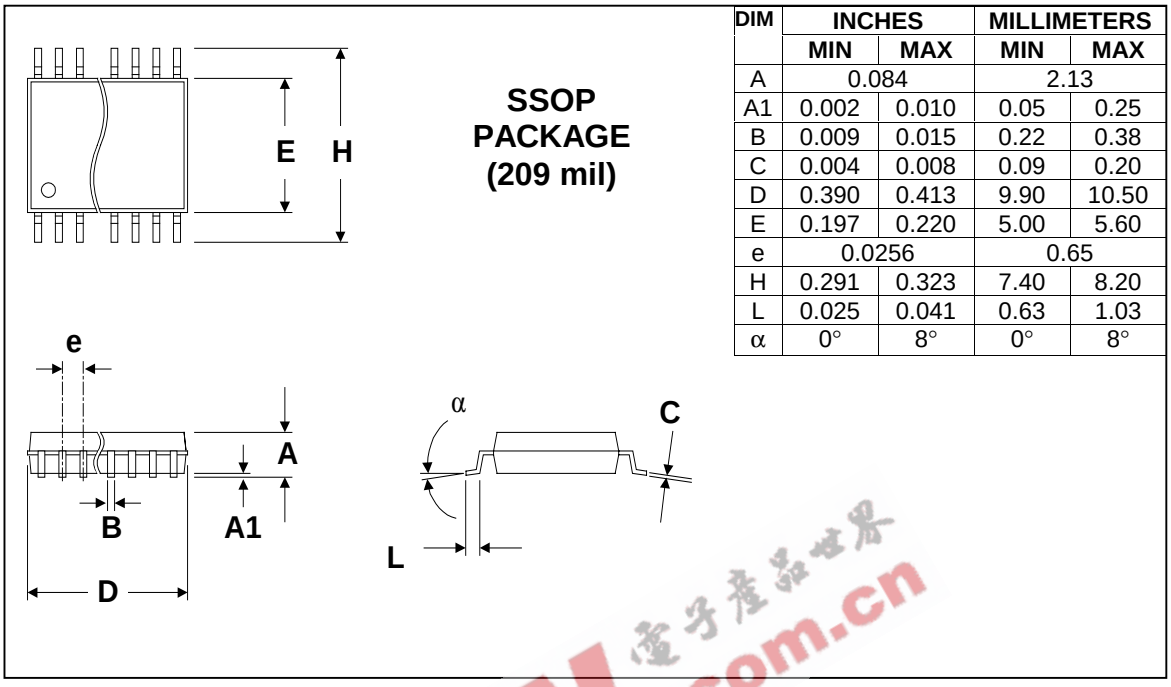
ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Units
V_{CC}	DC Power Supply Voltage	3.0 to 3.6	V
V_{IN}, V_{OUT}	DC Input, Output Voltage	-0.3 to V_{DD} + 0.3	V
I_{IN}	DC Current Drain V_{DD} and V_{SS} Pins	±10	mA
T_{STG}	Storage Temperature	-40 to +125	°C
T_{OPER}	Operation Temperature	0 to 70	°C

I_{CC} SPECIFICATIONS

Symbol	Parameter	Typ	Max	Units
I_{CC}	Supply Current	50	60	µA

OZ992 PACKAGE INFORMATION



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.084		2.13	
A1	0.002	0.010	0.05	0.25
B	0.009	0.015	0.22	0.38
C	0.004	0.008	0.09	0.20
D	0.390	0.413	9.90	10.50
E	0.197	0.220	5.00	5.60
e	0.0256		0.65	
H	0.291	0.323	7.40	8.20
L	0.025	0.041	0.63	1.03
α	0°	8°	0°	8°

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