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# W83795G/ADG

## Nuvoton H/W Monitor

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## 1. GENERAL DESCRIPTION (W83795G)

W83795G is an evolving version of the Nuvoton popular Hardware Monitor IC family. W83795G provides several innovative features, such as ASF 2.0 compliant specification, SMBus 2.0 ARP compatible command, Intel PECI2.0 interface, AMD SB-TSI interface, PROCESSOR HOT, parallel VID input, and serial VID input. Conventionally, W83795G can be used to monitor several critical hardware parameters of the system, including power supply voltages, fan speeds, and temperatures, which are very important for a high-end computer system, such as server, workstation...etc, to work stably and efficiently.

A 10-bit analog-to-digital converter (ADC) is built inside W83795G. W83795G can simultaneously monitor 15 (up to 21) analog voltage inputs (including power VDD / 3VSB / VBAT / VTT monitoring), 8 (up to 14) fan tachometer inputs, 8 fan output control, 6 remote temperature sensor inputs, 4 of which support current mode (dual current source) temperature measurement method, caseopen detection, Watch Dog Timer function, and GPIO pins. The sense of remote temperature can be performed by thermistors, or directly from Intel® / AMD™ CPU with thermal diode output. W83795G provides 8 PWM (pulse width modulation) / DC fan output modes for SMART FAN™ control - “ Thermal Cruise™ ” mode and “ SMART FAN™ IV ” mode. Under “ Thermal Cruise™ ” mode, temperatures of CPU and the system can be maintained within specific programmable ranges under the hardware control. As for SMART FAN™ IV, which provides 8 sets of temperatures setting point each could control fan's duty cycle, depends on this construction, fan could be operated at the lowest possible speed so that the acoustic noise could be balanced. As for warning mechanism, W83795G provides SMI#, OVT#, VOLT\_FAULT#, FAN\_FAULT#, and BEEP signals to protect the system. W83795G has 2 specific pins to provide address selection so that 4 W83795G could be wired through I<sup>2</sup>C interface at the same time.

W83795G can uniquely serve as an ASF sensor to respond to ASF master's request for the implementation of network management in OS-absent status. Through W83795G's compliance with ASF2.0 sensor specification, network server is able to monitor the environmental status of each client in OS-absent state by PET (Platform Event Trap) frame values returned from W83795G, such as temperatures, voltages, fan speed and case open. Moreover, W83795G supports SMBus 2.0 ARP command to solve the problem of address conflicts by dynamically assigning a new unique address for W83795G ASF Function after W83795G's UDID is sent.

Through the application software or BIOS, the users can read all the monitored parameters of the system from time to time. A pop-up warning can also be activated when the monitored item is out of the proper/preset range. The application software could be Nuvoton's Hardware Doctor™ or other management application software. Besides, the users can set up the upper and lower limits (alarm thresholds) of these monitored parameters and activate corresponding maskable interrupts.

## 2. GENERAL DESCRIPTION (W83795ADG)

W83795ADG is an evolving version of the Nuvoton popular Hardware Monitor IC family. W83795ADG provides several innovative features, such as ASF 2.0 compliant specification, SMBus 2.0 ARP compatible command, Intel PECI2.0 interface, and PROCESSOR HOT. Conventionally, W83795ADG can be used to monitor several critical hardware parameters of the system, including power supply voltages, fan speeds, and temperatures, which are very important for a high-end computer system, such as server, workstation...etc, to work stably and efficiently.

A 10-bit analog-to-digital converter (ADC) is built inside W83795ADG. W83795ADG can simultaneously monitor 12 (up to 18) analog voltage inputs (including power VDD / 3VSB / VBAT / VTT monitoring), 8 (up to 14) fan tachometer inputs, 2 fan output control, 6 remote temperature sensor inputs, 4 of which support current mode (dual current source) temperature measurement method, caseopen detection, Watch Dog Timer function, and GPIO pins. The sense of remote temperature can be performed by thermistors, or directly from Intel® CPU with thermal diode output. W83795ADG provides 2 PWM (pulse width modulation) / DC fan output modes for SMART FAN™ control - “Thermal Cruise™” mode and “SMART FAN™ IV” mode. Under “Thermal Cruise™” mode, temperatures of CPU and the system can be maintained within specific programmable ranges under the hardware control. As for SMART FAN™ IV, which provides 8 sets of temperatures setting point each could control fan's duty cycle, depends on this construction, fan could be operated at the lowest possible speed so that the acoustic noise could be balanced. As for warning mechanism, W83795ADG provides SMI#, OVT#, and BEEP signals to protect the system. W83795ADG has 2 specific pins to provide address selection so that 4 W83795ADG could be wired through I<sup>2</sup>C interface at the same time.

W83795ADG can uniquely serve as an ASF sensor to respond to ASF master's request for the implementation of network management in OS-absent status. Through W83795ADG's compliance with ASF2.0 sensor specification, network server is able to monitor the environmental status of each client in OS-absent state by PET (Platform Event Trap) frame values returned from W83795ADG, such as temperatures, voltages, fan speed and case open. Moreover, W83795ADG supports SMBus 2.0 ARP command to solve the problem of address conflicts by dynamically assigning a new unique address for W83795ADG ASF Function after W83795ADG's UDID is sent.

Through the application software or BIOS, the users can read all the monitored parameters of the system from time to time. A pop-up warning can also be activated when the monitored item is out of the proper/preset range. The application software could be Nuvoton's Hardware Doctor™ or other management application software. Besides, the users can set up the upper and lower limits (alarm thresholds) of these monitored parameters and activate corresponding maskable interrupts.

### 3. FEATURES (W83795G)

#### ■ Monitoring Items

##### VOLTAGE

Up to 21 voltage sensing inputs.

- 11 general voltage inputs.
- 4 power pins.
- 2 multi-function with thermistor temperature inputs.
- 4 multi-function with thermal diode pair.

##### VID

- Provide parallel VID input and serial VID (AMD™) input monitoring.

##### TEMPERATURE

Up to 6 temperature monitoring.

- 4 pairs thermal diode (current mode) temperature.
- 2 thermistor mode temperature.
- Support Intel® PECCI interfaces for reading CPU temperature. (Including PECCI\_REQ# mechanism)
- Support AMD™ SB-TSI for reading CPU temperature

##### PECCI (PLATFORM ENVIRONMENT CONTROL INTERFACE)

- Support PECCI 2.0 Specification
- Support 8 CPU Address and 2 domains per CPU address

##### AMD™ SB-TSI INTERFACE

- Support AMD™ SB-TSI Specification

##### FAN

Up to 8 Fan Control output and Up to 14 fan tachometer input.

- 6 pure fan control output pins (PWM / DC mode supported).
- 2 fan control output multi-function (FANCTL7 and FANCTL8).
- 8 pure fan tachometer input (FANIN1-FANIN8).
- 5 fan tachometer input multi-function (FANIN9-FANIN14)

##### SMART FAN™ CONTROL

- Support the SMART FAN™ control – “Thermal Cruise™” mode and “SMART FAN™ IV” mode.

- Multi-temperature source vs. Multi-fan-control output.
- 6 mapping table for temperature vs. fan control output (based on temperature's behavior).
- 8 tables for Speed Cruise Mode for fan control output.
- Item 2 and item 3 could both control fan control output behavior.

#### **CASEOPEN**

- Case open detection input. (low active).

#### **■ Address Resolution Protocol and Alert Standard Format**

- Support System Management Bus (SMBus) version 2.0 specification.
- Comply with hardware sensor slave ARP (Address Resolution Protocol).
- Response ASF 2.0 command – Get Event Data, Get Event Status, Device Type Poll.
- Comply with ASF 2.0 sensors (Monitoring fan speed, voltage, temperature, thermal trip and case open event/status).
- Support Remote Control subset: Remote Power-on/ Power-off/ Reset.

#### **■ Alarm Output**

- Issue SMI#, OVT#, VOLT\_FAULT#, FAN\_FAULT# signals to activate system protection.
- Issue BEEP signal to activate system speaker or buzzer.

#### **■ General**

- Provide up to 8 GPIO pins (multi-function with parallel VID).
- I<sup>2</sup>C / SMBus2.0 serial bus interface (max. 400KHz Clock).
- Watch Dog Timer function: WDTRST#, SYSRST\_IN.
- 2 address selection pins provide selectable address settings for application of 4 W83795G wired together through I<sup>2</sup>C interface.
- 3.3V operation.

#### **■ Package**

- 64-LQFP Package type
- Green Package (Halogen-free)



## 4. FEATURES (W83795ADG)

### ■ Monitoring Items

#### VOLTAGE

Up to 18 voltage sensing inputs.

- 8 general voltage inputs.
- 4 power pins.
- 2 multi-function with thermistor temperature inputs.
- 4 multi-function with thermal diode pair.

#### TEMPERATURE

Up to 6 temperature monitoring.

- 4 pairs thermal diode (current mode) temperature
- 2 thermistor mode temperature.
- Support Intel® PECE interfaces for reading CPU temperature. (Including PECE\_REQ# mechanism).

#### PECE (PLATFORM ENVIRONMENT CONTROL INTERFACE)

- Support PECE 2.0 Specification
- Support 8 CPU Address and 2 domains per CPU address

#### FAN

Up to 2 Fan Control output and Up to 14 fan tachometer input.

- 2 pure fan control output pins (PWM / DC mode supported).
- 8 pure fan tachometer input (FANIN1-FANIN8).
- 5 fan tachometer input multi-function (FANIN9-FANIN14).

#### SMART FAN™ CONTROL

- Support the SMART FAN™ control – “Thermal Cruise™” mode and “SMART FAN™ IV” mode.
- Multi-temperature source vs. Multi-fan-control output.
- 6 mapping table for temperature vs. fan control output (based on temperature’s behavior).
- 8 tables for Speed Cruise Mode for fan control output.
- Item 2 and item 3 could both control fan control output behavior.

#### CASEOPEN

- Case open detection input. (low active).

**■ Address Resolution Protocol and Alert Standard Format**

- Support System Management Bus (SMBus) version 2.0 specification.
- Comply with hardware sensor slave ARP (Address Resolution Protocol).
- Response ASF 2.0 command – Get Event Data, Get Event Status, Device Type Poll.
- Comply with ASF 2.0 sensors (Monitoring fan speed, voltage, temperature, thermal trip and case open event/status).
- Support Remote Control subset: Remote Power-on/ Power-off/ Reset.

**■ Alarm Output**

- Issue SMI# and OVT# signals to activate system protection.
- Issue BEEP signal to activate system speaker or buzzer (multi-function with OVT#)

**■ General**

- Provide up to 4 GPIO pins (multi-function with FANIN).
- I<sup>2</sup>C / SMBus2.0 serial bus interface (max. 400KHz Clock).
- Watch Dog Timer function: WDTRST#, SYSRST\_IN.
- 2 address selection pins provide selectable address settings for application of 4 W83795ADG wired together through I<sup>2</sup>C interface.
- 3.3V operation.

**■ Package**

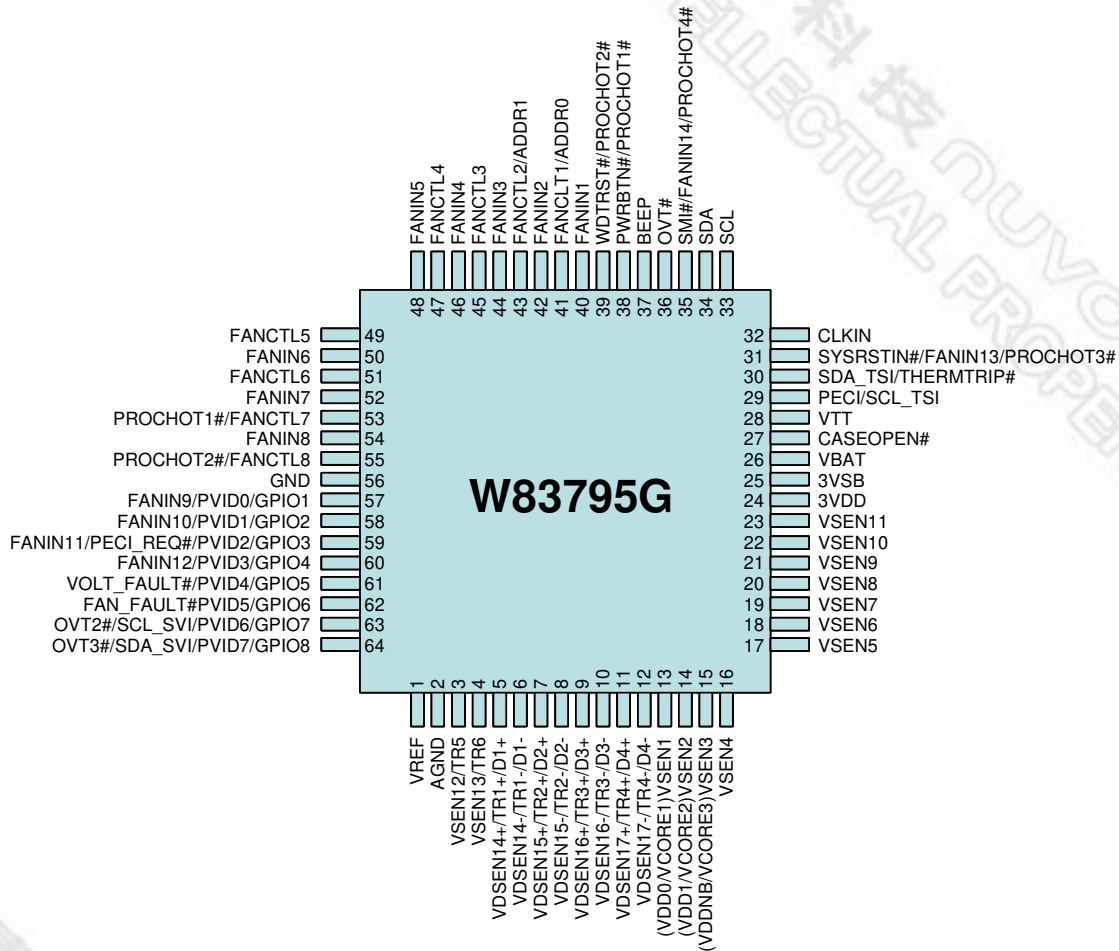
- 48-LQFP Package type
- Green Package (Halogen-free)

## 5. KEY SPECIFICATIONS

- Voltage monitoring accuracy ±10mV
- Temperature Sensor Accuracy
  - Remote Diode Sensor Accuracy (25~90°C) ± 1°C typ.
  - Resolution 0.25 °C
- Supply Voltage 3VDD and 3VSB 3.3V ± 10%
- Operating Supply Current 15 mA typ.

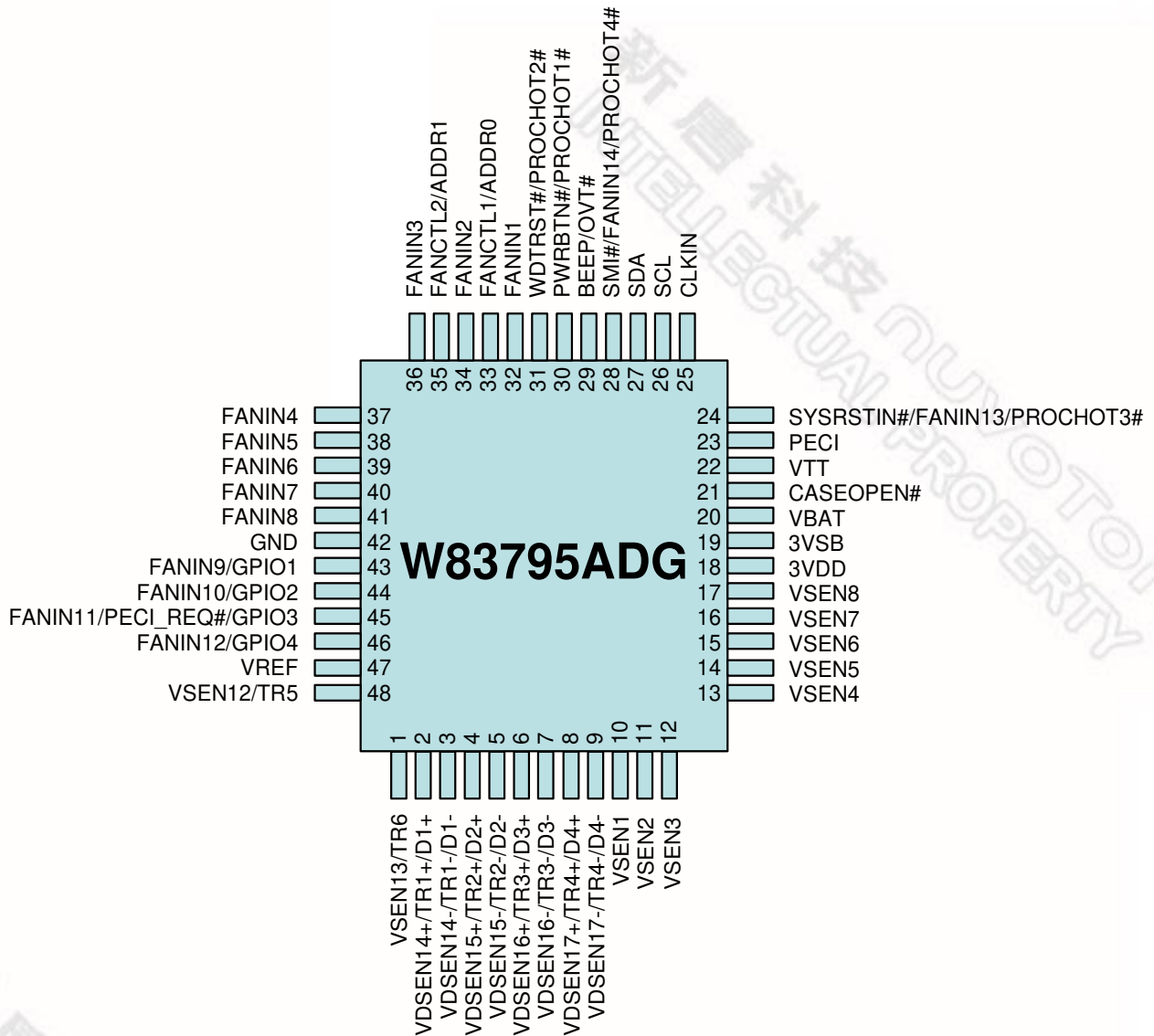
## 6. PIN CONFIGURATION

### W83795G





## W83795ADG



## 7. PIN DESCRIPTION

### 7.1 Pin Type Description

SYMBOL	DESCRIPTION
t	TTL level
V1	Type of INTELVID
V2	Type of AMDPVID
V3	Type of AMDSVID
V4	Type of PECCI
V5	Type of PROCHOT
s	Schmitt trigger
12	12mA sink/source capability
OUT	Output pin
OD	Open-drain output pin
AOUT	Output pin (Analog)
IN	Input pin (digital)
AIN	Input pin(Analog)

### 7.2 W83795G Pin Description List

Pin Name	Pin No.	Power Plane	Type	Description
VREF	1	3VSB	AOUT	Reference voltage output. (2.048V)
AGND	2	GND	Power	Ground for Analog Circuit
TR5	3	3VSB	AIN	Thermistor 5 sensing input. (default)
VSEN12				Voltage sensing input. Detection range is 0~2.048V.
TR6	4	3VSB	AIN	Thermistor 6 sensing input. (default)
VSEN13				Voltage sensing input. Detection range is 0~2.048V.
D1+	5	3VSB	AIN	Thermal diode 1 D+. (default)

Pin Name	Pin No.	Power Plane	Type	Description
TR1+				Thermistor 1 sensing input.
VDSEN14+				Voltage sensing input. Detection range is 0~2.048V.
D1-	6	3VSB	AIN	Thermal diode 1 D-. (default)
TR1-				Thermistor 1 sensing input.
VDSEN14-				Voltage sensing input, it has to connect to GND.
D2+	7	3VSB	AIN	Thermal diode 2 D+. (default)
TR2+				Thermistor 2 sensing input.
VDSEN15+				Voltage sensing input. Detection range is 0~2.048V.
D2-	8	3VSB	AIN	Thermal diode 2 D-. (default)
TR2-				Thermistor 2 sensing input.
VDSEN15-				Voltage sensing input, it has to connect to GND.
D3+	9	3VSB	AIN	Thermal diode 3 D+. (default)
TR3+				Thermistor 3 sensing input.
VDSEN16+				Voltage sensing input. Detection range is 0~2.048V.
D3-	10	3VSB	AIN	Thermal diode 3 D-. (default)
TR3-				Thermistor 3 sensing input.
VDSEN16-				Voltage sensing input, it has to connect to GND.
D4+	11	3VSB	AIN	Thermal diode 4 D+. (default)
TR4+				Thermistor 4 terminal input.

Pin Name	Pin No.	Power Plane	Type	Description
VDSEN17+				Voltage sensing input. Detection range is 0~2.048V.
D4-	12	3VSB	AIN	Thermal diode 4 D-. (default)
TR4-				Thermistor 4 sensing input.
VDSEN17-				Voltage sensing input, it has to connect to GND.
VDD0/VCORE1/ VSEN1	13	3VSB	AIN	Voltage sensing input. Detection range is 0~2.048V. When Dynamic VID (DVID) function is enable. VCORE1 sensing input for PVID or VDD0 sensing input for SVID.
VDD1/VCORE2/ VSEN2	14	3VSB	AIN	Voltage sensing input. Detect range is 0~2.048V. When Dynamic VID (DVID) function is enable. VCORE2 sensing input for PVID or VDD1 sensing input for SVID.
VDDNB/VCORE3/ VSEN3	15	3VSB	AIN	Voltage sensing input. Detect range is 0~2.048V. When Dynamic VID (DVID) function is enable. VDDNB sensing input for SVID. VCORE3 sensing input for PVID or VDDNB sensing input for SVID.
VSEN4	16	3VSB	AIN	Voltage sensing input. Detect range is 0~2.048V
VSEN5	17	3VSB	AIN	Voltage sensing input. Detect range is 0~2.048V
VSEN6	18	3VSB	AIN	Voltage sensing input. Detect range is 0~2.048V
VSEN7	19	3VSB	AIN	Voltage sensing input. Detect range is 0~2.048V
VSEN8	20	3VSB	AIN	Voltage sensing input. Detect range is 0~2.048V
VSEN9	21	3VSB	AIN	Voltage sensing input. Detect range is 0~2.048V
VSEN10	22	3VSB	AIN	Voltage sensing input. Detect range is 0~2.048V
VSEN11	23	3VSB	AIN	Voltage sensing input. Detect range is 0~2.048V



Pin Name	Pin No.	Power Plane	Type	Description
3VDD	24	-	POWER	+3V VDD power. It is also a voltage monitor channel. This pin has internal divider resistors to scale down the input voltage for analog voltage measurement. Bypass with the parallel combination of 10 $\mu$ F (electrolytic or tantalum) and 0.1 $\mu$ F (ceramic) bypass capacitors.
3VSB	25	-	POWER	This pin is power for W83795G. It is also a voltage monitor channel. This pin has internal divider resistors to scale down the input voltage for analog voltage measurement. Bypass with the parallel combination of 10 $\mu$ F (electrolytic or tantalum) and 0.1 $\mu$ F (ceramic) bypass capacitors.
VBAT	26	-	POWER	VBAT supplies power for CASEOPEN. Besides, it is also a voltage monitor channel for +3V on-board battery. This pin has internal divider resistors to scale down the input voltage for analog voltage measurement.
CASEOPEN#	27	VBAT	IN <sub>ts</sub>	CASEOPEN detection. An active low input from an external device when chassis is Intruded. This signal will be latched even the chassis is closed.
VTT	28	VTT	POWER	Intel® CPU Vtt power. It is also a voltage monitor channel. Detect range is 0~2.048V
PECI	29	3VSB	V4	Intel® CPU Peci interface. (default)
SCL_TSI			V3	AMD® CPU SB-TSI interface.
SDA_TSI	30	3VSB	V3	AMD® CPU SB-TSI interface
THERMTRIP#			V5	CPU THERMTRIP# signal. (default) When CPU assert THERMTRIP# signal, W83795G will latch this event.
SYSRSTIN#	31	3VSB	IN <sub>ts</sub>	System reset input. (default) When this pin is asserted to low, Watch-dog timer will be reset.
FANIN13			IN <sub>ts</sub>	Fan tachometer input
PROCHOT3#			V5	This is a bi-directional pin. As an input signal, when it is pull-ed to low, the

Pin Name	Pin No.	Power Plane	Type	Description
				corresponding fan control output pins will be set to a preset value.
CLKIN	32	3VSB	IN <sub>ts</sub>	System clock input. PECl ,AMD-TSl ,VID and FAN functions will use this clock to drive logics.
SCL	33	3VSB	IN <sub>ts</sub>	I <sup>2</sup> C Serial Bus Clock.
SDA	34	3VSB	IN <sub>ts</sub> / OD <sub>12</sub>	I <sup>2</sup> C Serial Bus bi-directional data.
SMI#	35	3VSB	OD <sub>12</sub>	System Management Interrupt. (default)
FANIN14			IN <sub>ts</sub>	Fan tachometer input
PROCHOT4#			V5	This is a bi-directional pin. As an input signal, when it is pull-ed to low, the corresponding fan control output pins will be set to a preset value.
OVT#	36	3VSB	OD <sub>12</sub>	Over temperature alert. Low active.
BEEP	37	3VSB	OD <sub>12</sub>	BEEP output when abnormal event occurs. When this is no abnormal events, this pin asserts high.
PWRBTN#	38	3VSB	OD <sub>12</sub>	Power Button output for enable/disable power supply. (default) This pin is related to ASF commands.
PROCHOT1#			V5	This is a bi-directional pin. As an input signal, when it is pull-ed to low, the corresponding fan control output pins will be set to a preset value.
WDTRST#	39	3VSB	OD <sub>12</sub>	Output signal for system reset. (default) There are two reset sources: Watch-dog timer and ASF RESET command. When reset event occurs, this pin will assert 100ms low pulse for system reset.
PROCHOT2#			V5	This is a bi-directional pin. As an input signal, when it is pull-ed to low, the corresponding fan control output pins will be set to a preset value.
FANIN1	40	3VSB	IN <sub>ts</sub>	Fan tachometer input

Pin Name	Pin No.	Power Plane	Type	Description
FANCTL1	41	3VSB	OUT <sub>12</sub> / AOUT	Fan speed control PWM/DC output. When the power of 3VDD is 0V, this pin will drive logic 0. The power of this pin is supplied by 3VSB. It can be configured to PWM/DC mode by registers. Default is PWM output. As DC output, 256 steps output voltage scaled to 0~3VSB.
ADDR0			IN <sub>ts</sub>	I <sup>2</sup> C device address bit0 trapping during 3VSB power on.
FANIN2	42	3VSB	IN <sub>ts</sub>	Fan tachometer input
FANCTL2	43	3VSB	OUT <sub>12</sub> / AOUT	Fan speed control PWM/DC output. When the power of 3VDD is 0V, this pin will drive logic 0. The power of this pin is supplied by 3VSB. It can be configured to PWM/DC mode by registers. Default is PWM output. As DC output, 256 steps output voltage scaled to 0~3VSB.
ADDR1			IN <sub>ts</sub>	I <sup>2</sup> C device address bit1 trapping during 3VSB power on.
FANIN3	44	3VSB	IN <sub>ts</sub>	Fan tachometer input
FANCTL3	45	3VSB	OD <sub>12</sub> / AOUT	Fan speed control PWM/DC output. When the power of 3VDD is 0V, this pin will drive logic 0. The power of this pin is supplied by 3VSB. It can be configured to PWM/DC mode by registers. Default is PWM output. As DC output, 256 steps output voltage scaled to 0~3VSB.
FANIN4	46	3VSB	IN <sub>ts</sub>	Fan tachometer input
FANCTL4	47	3VSB	OD <sub>12</sub> / AOUT	Fan speed control PWM/DC output. When the power of 3VDD is 0V, this pin will drive logic 0. The power of this pin is supplied by 3VSB. It can be configured to PWM/DC mode by registers. Default is PWM output. As DC output, 256 steps output voltage scaled to 0~3VSB.
FANIN5	48	3VSB	IN <sub>ts</sub>	Fan tachometer input
FANCTL5	49	3VSB	OD <sub>12</sub> / AOUT	Fan speed control PWM/DC output. When the power of 3VDD is 0V, this pin will drive logic 0.

Pin Name	Pin No.	Power Plane	Type	Description
				The power of this pin is supplied by 3VSB. It can be configured to PWM/DC mode by registers. Default is PWM output. As DC output, 256 steps output voltage scaled to 0~3VSB.
FANIN6	50	3VSB	IN <sub>ts</sub>	Fan tachometer input
FANCTL6	51	3VSB	OD <sub>12</sub> / AOUT	Fan speed control PWM/DC output. When the power of 3VDD is 0V, this pin will drive logic 0. The power of this pin is supplied by 3VSB. It can be configured to PWM/DC mode a by registers. Default is PWM output. As DC output, 256 steps output voltage scaled to 0~3VSB.
FANIN7	52	3VSB	IN <sub>ts</sub>	Fan tachometer input
FANCTL7	53	3VSB	OD <sub>12</sub> / AOUT	Fan speed control PWM/DC output. (default) When the power of 3VDD is 0V, this pin will drive logic 0. The power of this pin is supplied by 3VSB. It can be configured to PWM/DC mode by registers. Default is PWM output. As DC output, 256 steps output voltage scaled to 0~3VSB.
PROCHOT1#			V5	This is a bi-directional pin. As an input signal, when it is pull-ed to low, the corresponding fan control output pins will be set to a preset value.
FANIN8	54	3VSB	IN <sub>ts</sub>	Fan tachometer input
FANCTL8	55	3VSB	OD <sub>12</sub> / AOUT	Fan speed control PWM/DC output. (default) When the power of 3VDD is 0V, this pin will drive logic 0. The power of this pin is supplied by 3VSB. It can be configured to PWM/DC mode by registers. Default is PWM output. As DC output, 256 steps output voltage scaled to 0~3VSB.



Pin Name	Pin No.	Power Plane	Type	Description
PROCHOT2#			V5	This is a bi-directional pin. As an input signal, when it is pull-ed to low, the corresponding fan control output pins will be set to a preset value.
GND	56		POWER	System Ground.
PVID0	57	3VSB	V1/V2	Voltage Supply readouts bit 0 from CPU.
GPIO1			Ints /OD <sub>12</sub>	General purpose I/O function. (default)
FANIN9			In <sub>ts</sub>	Fan tachometer input
PVID1	58	3VSB	V1/V2	Voltage Supply readouts bit 1 from CPU.
GPIO2			Ints /OD <sub>12</sub>	General purpose I/O function. (default)
FANIN10			In <sub>ts</sub>	Fan tachometer input
PVID2	59	3VSB	V1/V2	Voltage Supply readouts bit 2 from CPU.
GPIO3			Ints /OD <sub>12</sub>	General purpose I/O function. (default)
FANIN11			In <sub>ts</sub>	Fan tachometer input
PECI_REQ#			OD <sub>12</sub>	PECI control signal for CPU entering C3/C4 state.
PVID3	60	3VSB	V1/V2	Voltage Supply readouts bit 3 from CPU.
GPIO4			Ints /OD <sub>12</sub>	General purpose I/O function. (default)
FANIN12			In <sub>ts</sub>	Fan tachometer input
PVID4	61	3VSB	V1/V2	Voltage Supply readouts bit 4 from CPU.
GPIO5			Ints /OD <sub>12</sub>	General purpose I/O function. (default)
VOLT_FAULT#			OD <sub>12</sub>	Active-Low output. This pin will be a logic Low when the voltage exceeds its high/low limit.

Pin Name	Pin No.	Power Plane	Type	Description
PVID5	62	3VSB	V1/V2	Voltage Supply readouts bit 5 from CPU.
GPIO6			Ints /OD <sub>12</sub>	General purpose I/O function. (default)
FAN_FAULT#			OD <sub>12</sub>	Active-Low output. This pin will be a logic Low when any Fan is abnormally stopped.
PVID6	63	3VSB	V1	Voltage Supply readouts bit 6 from CPU.
GPIO7			Ints /OD <sub>12</sub>	General purpose I/O function. (default)
OVT2#			OD <sub>12</sub>	Over temperature alert. Low active
SCL_SVI			V3	AMD® CPU SVI interface
PVID7	64	3VSB	V1	Voltage Supply readouts bit 7 from CPU.
GPIO8			Ints /OD <sub>12</sub>	General purpose I/O function. (default)
OVT3#			OD <sub>12</sub>	Over temperature alert. Low active
SDA_SVI			V3	AMD® CPU SVI interface IN: monitor SDA_SVI interface. OD <sub>12</sub> : response ACK command

### 7.3 W83795ADG Pin Description List

Pin Name	Pin No.	Power Plane	Type	Description
TR6	1	3VSB	AIN	Thermistor 6 sensing input. (default)
VSEN13				Voltage sensing input. Detection range is 0~2.048V.
D1+	2	3VSB	AIN	Thermal diode 1 D+.(default)
TR1+				Thermistor 1 sensing input.
VDSEN14+				Voltage sensing input. Detection range is 0~2.048V.
D1-	3	3VSB	AIN	Thermal diode 1 D-. (default)
TR1-				Thermistor 1 sensing input.
VDSEN14-				Voltage sensing input, it has to connect to GND.
D2+	4	3VSB	AIN	Thermal diode 2 D+. (default)
TR2+				Thermistor 2 sensing input.
VDSEN15+				Voltage sensing input. Detection range is 0~2.048V.
D2-	5	3VSB	AIN	Thermal diode 2 D-. (default)
TR2-				Thermistor 2 sensing input.
VDSEN15-				Voltage sensing input, it has to connect to GND.
D3+	6	3VSB	AIN	Thermal diode 3 D+. (default)
TR3+				Thermistor 3 sensing input.
VDSEN16+				Voltage sensing input. Detection range is 0~2.048V.
D3-	7	3VSB	AIN	Thermal diode 3 D-. (default)

Pin Name	Pin No.	Power Plane	Type	Description
TR3-				Thermistor 3 sensing input.
VDSEN16-				Voltage sensing input, it has to connect to GND.
D4+	8	3VSB	AIN	Thermal diode 4 D+. (default)
TR4+				Thermistor 4 terminal input.
VDSEN17+				Voltage sensing input. Detection range is 0~2.048V.
D4-	9	3VSB	AIN	Thermal diode 4 D-. (default)
TR4-				Thermistor 4 sensing input.
VDSEN17-				Voltage sensing input, it has to connect to GND.
VSEN1	10	3VSB	AIN	Voltage sensing input. Detection range is 0~2.048V.
VSEN2	11	3VSB	AIN	Voltage sensing input. Detect range is 0~2.048V.
VSEN3	12	3VSB	AIN	Voltage sensing input. Detect range is 0~2.048V.
VSEN4	13	3VSB	AIN	Voltage sensing input. Detect range is 0~2.048V
VSEN5	14	3VSB	AIN	Voltage sensing input. Detect range is 0~2.048V
VSEN6	15	3VSB	AIN	Voltage sensing input. Detect range is 0~2.048V
VSEN7	16	3VSB	AIN	Voltage sensing input. Detect range is 0~2.048V
VSEN8	17	3VSB	AIN	Voltage sensing input. Detect range is 0~2.048V
3VDD	18	-	POWER	+3V VDD power. It is also a voltage monitor channel. This pin has internal divided resistors to scale down the input voltage for analog voltage measurement. Bypass with the parallel combination of 10 $\mu$ F (electrolytic or tantalum) and 0.1 $\mu$ F (ceramic) bypass capacitors.
3VSB	19	-	POWER	This pin is power for W83795ADG. It is also a voltage monitor channel. This pin has internal

Pin Name	Pin No.	Power Plane	Type	Description
				divided resistors to scale down the input voltage for analog voltage measurement. Bypass with the parallel combination of 10 $\mu$ F (electrolytic or tantalum) and 0.1 $\mu$ F (ceramic) bypass capacitors.
VBAT	20	-	POWER	VBAT supplies power for CASEOPEN. Besides, it is also a voltage monitor channel for +3V on-board battery. This pin has internal divided resistors to scale down the input voltage for analog voltage measurement.
CASEOPEN#	21	VBAT	IN <sub>ts</sub>	CASEOPEN detection. An active low input from an external device when chassis is Intruded. This signal will be latched even the chassis is closed.
VTT	22	VTT	POWER	Intel® CPU Vtt power. It is also a voltage monitor channel. Detect range is 0~2.048V
PECI	23	3VSB	V4	Intel® CPU Peci interface. (default)
SYSRSTIN#	24	3VSB	IN <sub>ts</sub>	System reset input. (default) When this pin is asserted to low, Watch-dog timer will be reset.
FANIN13			IN <sub>ts</sub>	Fan tachometer input
PROCHOT3#			V5	This is a bi-directional pin. As an input signal, when it is pulled to low, the corresponding fan control output pins will be set to a preset value.
CLKIN	25	3VSB	IN <sub>ts</sub>	System clock input. Peci and FAN functions will use this clock to drive logics.
SCL	26	3VSB	IN <sub>ts</sub>	I <sup>2</sup> C Serial Bus Clock.
SDA	27	3VSB	IN <sub>ts</sub> / OD <sub>12</sub>	I <sup>2</sup> C Serial Bus bi-directional data.
SMI#	28	3VSB	OD <sub>12</sub>	System Management Interrupt. (default)
FANIN14			IN <sub>ts</sub>	Fan tachometer input
PROCHOT4#			V5	This is a bi-directional pin. As an input signal, when it is pull-ed to low, the corresponding fan control output pins will be set to a preset value.
OVT#	29	3VSB	OD <sub>12</sub>	Over temperature alert. Low active.



Pin Name	Pin No.	Power Plane	Type	Description
BEEP				BEEP output when abnormal event occurs. When this is no abnormal events, this pin asserts high. (default)
PWRBTN#			OD <sub>12</sub>	Power Button output for enable/disable power supply. (default) This pin is related to ASF commands.
PROCHOT1#	30	3VSB	V5	This is a bi-directional pin. As an input signal, when it is pull-ed to low, the corresponding fan control output pins will be set to a preset value.
WDTRST#			OD <sub>12</sub>	Output signal for system reset. (default) There are two reset sources: Watch-dog timer and ASF RESET command. When reset event occurs, this pin will assert 100ms low pulse for system reset.
PROCHOT2#	31	3VSB	V5	This is a bi-directional pin. As an input signal, when it is pull-ed to low, the corresponding fan control output pins will be set to a preset value.
FANIN1	32	3VSB	IN <sub>ts</sub>	Fan tachometer input
FANCTL1			OUT <sub>12</sub> / AOUT	Fan speed control PWM/DC output. When the power of 3VDD is 0V, this pin will drive logic 0. The power of this pin is supplied by 3VSB. It can be configured to PWM/DC mode by registers. Default is PWM output. As DC output, 256 steps output voltage scaled to 0~3VSB.
ADDR0	33	3VSB	IN <sub>ts</sub>	I <sup>2</sup> C device address bit0 trapping during 3VSB power on.
FANIN2	34	3VSB	IN <sub>ts</sub>	Fan tachometer input
FANCTL2			OUT <sub>12</sub> / AOUT	Fan speed control PWM/DC output. When the power of 3VDD is 0V, this pin will drive logic 0. The power of this pin is supplied by 3VSB. It can be configured to PWM/DC mode by registers. Default is DC output. As DC output, 256 steps output voltage scaled to 0~3VSB.