

## 1 General Description

The F71872 is the featured IO chip specifically for PC system. Equipped with one IEEE 1284 parallel port, two UART port and FDC. The F71872 provides SIR and key board controller compatible with PS/2 keyboard and mouse as well, integrated with hardware monitor, supports 11 sets of voltage sensor and 4 voltage fault signal outputs, 3 sets of creative auto-controlling fans and 3 temperature sensor pins for the accurate current type temp. Measurement for CPU thermal diode or external transistors 2N3906.

The F71872 provides flexible features for multi-directional application. For instance, supports CPU VID (Intel CPU On The Fly) controlling and comply with VRM10.0, provides 24 GPIO pins which include pulse/level mode selection, IRQ sharing function also designed in UART feature for particular usage and accurate current mode H/W monitor will be worth in measurement of temperature.

Furthermore, the F71872 supports an automatic/dynamic over-voltage function (Vcore change) for application of over-clocking or under clocking. This function provides a pin (VID\_OTF#) by external trigger signal to improve the CPU's performance by voltage (Vcore) changing automatically when system is going to run over-clocking or under-clocking. Due to achieve this action, suggest F75133S Loading Gauge can be the part detects system/CPU loading to decide when issues the over-clocking/under-clocking and dynamic signals for system executing. Briefly, user can gain more features on motherboard by these two parts which improve performance and efficiency.

The F71872 is powered by 3.3V voltage, with the LPC interface in the package of 128-QFP.

## 2 Features

### ● General Functions

- Comply with LPC Spec. 1.0
- Support DPM (Device Power Management), ACPI
- Support CPU VID (Intel CPU On The Fly) controlling and comply with VRM10.0
- Vcore monitoring supports dynamic VID
- Support automatic and dynamic vcore change function for over/under clocking use
- 24 GPIO Pins for flexible application
- 24/48 MHz clock input

### ● FDC

- Compatible with IBM PC AT disk drive systems
- Variable write pre-compensation with track selectable capability
- Support vertical recording format
- DMA enable logic
- 16-byte data FIFOs
- Support floppy disk drives and tape drives
- Detects all overrun and under run conditions
- Built-in address mark detection circuit to simplify the read electronics
- Completely compatible with industry standard 82077
- 360K/720K/1.2M/1.44M/2.88M format; 250K, 300K, 500K, 1M, 2M bps data transfer rate

- **UART**
  - Two high-speed 16C550 compatible UART with 16-byte FIFOs
  - Fully programmable serial-interface characteristics
  - Baud rate up to 115.2K
- **Infrared**
  - Support IrDA version 1.0 SIR protocol with maximum baud rate up to 115.2K bps
- **Parallel Port**
  - One PS/2 compatible bi-directional parallel port
  - Support Enhanced Parallel Port (EPP) – Compatible with IEEE 1284 specification
  - Support Extended Capabilities Port (ECP) – Compatible with IEEE 1284 specification
  - Enhanced printer port back-drive current protection
- **Keyboard Controller**
  - 8042 based with optional F/W from AMIKKEYTM-2, with 2K bytes of programmable ROM, and 256 bytes of RAM
  - Asynchronous Access to Two Data Registers and One status Register
  - Software compatibility with the 8042
  - Support PS/2 mouse
  - Support both interrupt and polling modes
  - Fast Gate A20 and Hardware Keyboard Reset
  - 6 MHz, 8 MHz, 12 MHz, or 16 MHz operating frequency
- **Hardware Monitor Functions**
  - 12 VID pins for VRM10.0 and CPU VID OTF (On The Fly)
  - 3 current type accurate ( $\pm 3\%$ ) thermal inputs for CPU thermal diode and 2N3906 transistors
  - 11 sets voltage monitoring (8 external and 3 internal powers)
  - 4 voltage\_fault# hardware signal outputs
  - 3 fan speed monitoring inputs
  - 3 fan speed auto-control (support 3 wire and 4 wire fans)
  - Case intrusion detection circuit
  - WATCHDOG comparison of all monitored values
  - Issue PME# and independent Voltage\_fault #
- **Package**
  - 128-pin PQFP

Noted: Patented TW207103 TW207104 TW220442 US6788131 B1 TWI235231

### 3 Key Specifications

- |  |              |
|--|--------------|
| ● Supply Voltage                       | 3.0V to 3.6V |
| ● Operating Supply Current             | 10 mA typ.   |
| ● Power Down Current (Suspension Mode) | 6 mA typ.    |