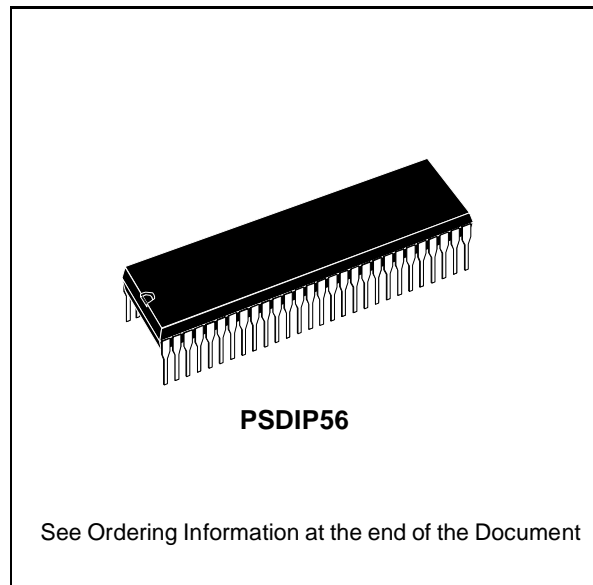


## 8-BIT, 56-PIN MCU FOR MONITORS, WITH UP TO 60K ROM, 2K RAM, ADC, TIMER, IR, SYNC, PWM/BRM, DDC/DMA, I<sup>2</sup>C & SCI

PRODUCT PREVIEW

- User ROM/OTP/EPROM: up to 60 Kbytes
- Data RAM: up to 2 Kbytes (256 bytes stack)
- 8 MHz Maximum Internal Clock Frequency in fast mode, 4 MHz in normal mode
- Run, Wait and Halt CPU modes
- Sync Processor for Mode Recognition, power management and composite video blanking, clamping and free-running frequency generation.
  - Corrector mode
  - Analyzer mode
- Fast I<sup>2</sup>C Multi Master Interface
- DDC Bus Interface fully compliant with DDC1, 2B, 2B+, 2AB, 2Bi standards
- 32 I/O lines
  - 8 Open Drain I/Os with high current capacity (10 mA) on port A
  - 5 lines programmable as interrupt inputs
- 16-bit timer with 2 input captures and 2 output compare functions (with 1 output pin)
- 8-bit Analog to Digital Converter with 8 channels on port B
- 8 10-bit PWM/BRM Digital to Analog outputs
- One 12-bit PWM/BRM Digital to Analog output
- Asynchronous Serial Communications Interface
- Infra red controller
- Master Reset and Power on/off reset<sup>1</sup>
- Programmable Watchdog for system reliability
- 56-pin Shrink Dual In line Plastic package
- Fully static operation
- 0 to + 70 °C operating temperature range
- 4.0V to 5.5V supply operating range
- 24 MHz Quartz Oscillator
- 63 basic instructions/17 main address modes
- 8x8 unsigned multiply instruction
- True bit manipulation
- Versatile Development Tools (DOS and Windows) including assembler, linker, C-compiler, archiver, source level debugger, EPROM programmer and hardware emulator



### Device Summary

| Features             | ST72751N9       | ST72751N7 | ST72751N6 |
|----------------------|-----------------|-----------|-----------|
| ROM (bytes)          | 60K             | 48K       | 32K       |
| RAM (bytes)          | 2K              | 1.5       | 1         |
| ADC                  | 8 channels      |           |           |
| Timer                | 1               |           |           |
| I <sup>2</sup> C Bus | one multimaster |           |           |
| DDC/DMA              | yes             |           |           |
| Sync                 | yes             |           |           |
| PWM                  | 9               |           |           |
| I/O                  | 32              |           |           |
| SCI                  | yes             |           |           |
| IR                   | yes             |           |           |
| EPROM Device         | ST72E751N9D1    |           |           |
| OTP Device           | ST72T751N9B1    |           |           |

**Note 1:** Power On/Off reset not implemented in this revision.

# 1 GENERAL DESCRIPTION

## 1.1 INTRODUCTION

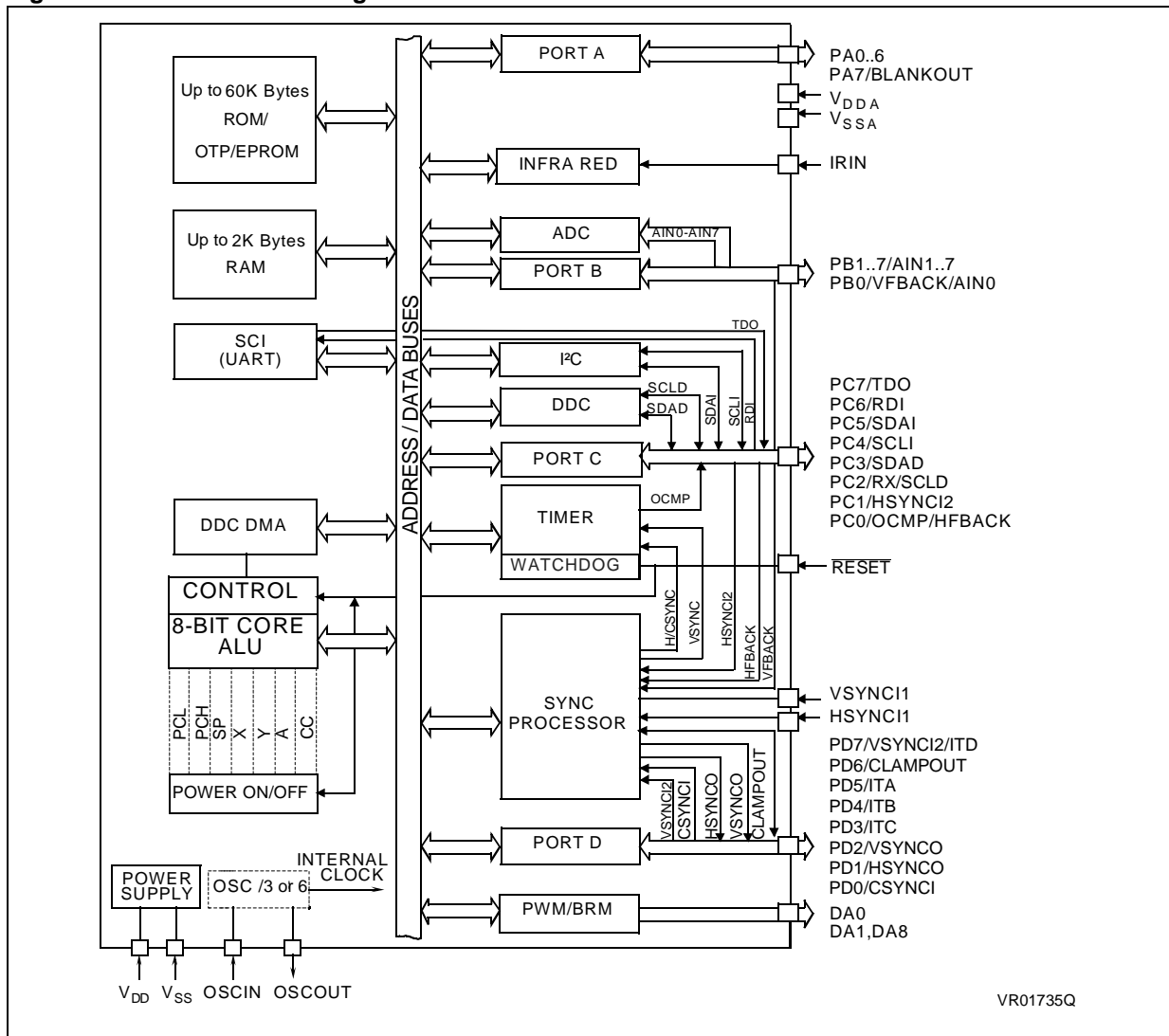
The ST7275 is a HCMOS microcontroller unit (MCU) from the ST7 family with dedicated peripherals for Monitor applications.

It is based around an industry standard 8-bit core and offers an enhanced instruction set. The processor runs with an external clock at 24 MHz with a 5V supply. Due to the fully static design of this device, operation down to DC is possible. Under software control the ST7275 can be placed in WAIT or HALT mode thus reducing power consumption. The enhanced instruction set and addressing modes afford real programming potential.

In addition to standard 8-bit data management the ST7 features true bit manipulation, 8x8 unsigned multiplication and indirect addressing modes.

The device includes an on-chip oscillator, CPU, Sync Processor for video timing & Vfbck analysis, up to 60K ROM, up to 2K RAM, I/O, a timer with 2 input captures and 2 output compares, an 8-channel Analog to Digital Converter, DDC/DMA, I<sup>2</sup>C multi Master, SCI Serial Communications Interface, Watchdog Reset, an Infra Red Control preprocessor, and one 12-bit and eight 10-bit PWM/BRM outputs for analog DC control of external functions.

Figure 1. ST7275-1 Block Diagram



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