

SV TEHS SIA

Development Tools for Java™

IPVES Application Note 13:

Temperature measurement

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IPJV-ES Application Note 13: Temperature measurement

V 1.0

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Introduction

IPJV-ES Development Board can be used in different applications.

The IPJV-ES Development Board with embedded virtual machine for Java™ offers an Ethernet based connection to the Internet and numerous interface possibilities to other equipment, include serial RS-232 DTE interface, serializer module with UART, SPI, GPSI and 10BASE-T Ethernet support, 6-channel 10-bit A/D inputs, analog comparator and 16 I/O pins.

The IPJVM virtual machine for Java is a clean room implementation, that has been specially optimized to run on device with limited amount of internal memory and designed for Java™ 2 Platform, Micro Edition (J2ME™) Connected Device Configuration (CDC) Foundation Profile.

A complete development toolkit available for application development with IPJVM platform. The IPJVM platform provide system designers and software developers simple, flexible and cost-effective solution for embedded Internet application rapid development and prototyping. The platform is combination of Uvicom IP2022 Internet Processor and a Java programmable runtime environment.

The IPJV-ES Development Board based on Uvicom IP2022 Internet Processor, optimized for Internet-edge applications. It handles protocol processing in software instead of in hard-wired logic, making the whole solution more adaptable to evolving standards and allow designer to use the same solution across a wide variety of internet-edge products simply by changing the software, thereby significantly reducing nonrecurring engineering (NRE) costs.

Typical IPJV-ES applications include Includes HTTP/FTP/SMTP/SNMP/Telnet servers, PPP support on embedded UARTs, encryption, security and authentication tools, reporting and alarming via e-mail, remote monitoring, control, management and maintenance.

Updates

New versions of the IPJV-ES software and applications can be obtained from the manufacturer's web site at:

<http://www.svtehs.com/ipjv.htm>

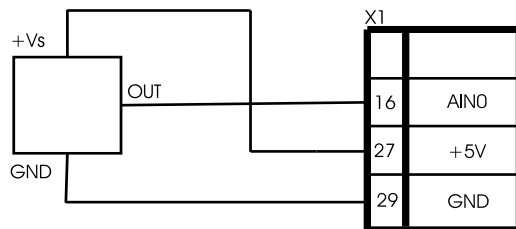
Temperature measurement

Voltage-output analog temperature sensor connection.

Temperature is the most often measured environmental quantity. Manufacturers build a wide variety of temperature sensor ICs for different applications. One of the most common and simplest are voltage-output analog temperature sensors. This application shows National Technology LM35/45 Celsius sensors and LM50/LM60/LM61/LM62 single supply Celsius sensors connection to the IPJV board. All these sensors are three-terminal devices that produce output voltage proportional to the temperature. Choose the necessary sensor, depending on the application requirements.

	Output	@25 °C	@100 °C	Accuracy	Package
LM35	10mV/°C	250mV	1.000V	±1°C -55°C ...+150°C	TO46, TO92, TO220, SO8
LM45	10mV/°C	250mV	1.000V	±3°C -20°C ...+100°C	SOT23
LM50	10mV/°C	750mV	1.500V	±4°C -40°C ...+125°C	SOT23
LM60	6.25mV/°C	580mV	1.049V	±4°C -40°C ...+125°C	TO92, SOT23
LM61	10mV/°C	850mV	1.600V	±4°C -30°C ...+100°C	TO92, SOT23
LM62	15.6mV/°C	870mV	2.040V	±2.5°C 0°C ...+90°C	SOT23

Typical sensor connection shown on the picture below:



TEMPERATURE MEASUREMENT

This simple program every 1 sec read analog input ADC0 on the system output. By default `System.out`, `System.err` and `System.in` assigned to the first instance of the serial interface RS232.

```
import jbvm.ip2k.*;
class AdcShow
{
public static void main(String[] args)
    {
    int    ad cres;
    AdcIO.setExtRef(false);
    while (true)
        {
            ad cres=AdcIO.readValue(0);
            System.out.println("Temperature: "+ad cres);
            try { Thread.sleep(1000); } catch (InterruptedException ie) {}
        }
    }
```

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