

# **Lmsensor User Guide**

The UNO-2160 is an embedded, application ready platform that shortens your development time. Its Celeron 400 MHz processor provides good performance, and the two PC/104 slots offer convenient expansion possibilities. The two PC/104 slots could for example be used for data acquisition or communication modules. Four serial ports and several other networking interfaces support diverse communication requirements. Moreover, UNO-2160 can be used as a controller, communication gateway or thin client. With a watchdog timer and battery backed memory, system reliability is further enhanced. Similar to the other members of the UNO-2000 family, UNO-2160 has a compact and fanless design, and is made for installation in a rugged environment.

The UNO-2160 provides two embedded Operating Systems, Windows® CE.NET 4.2 and Windows XP Embedded OS, which offer a pre-configured image with optimized onboard device drivers. Windows XP Embedded delivers the power of the Windows operating system in componentized form. You can seamlessly integrate your applications into Windows XP Embedded.

The UNO-2160 provides a powerful and easy-to-use hardware diagnostic tool: Lmsensor. It will gather CPU internal temperature, CPU module board temperature, CPU operating voltage by hardware sensors. With Lmsensor, you can monitor the system status easily and accurately.

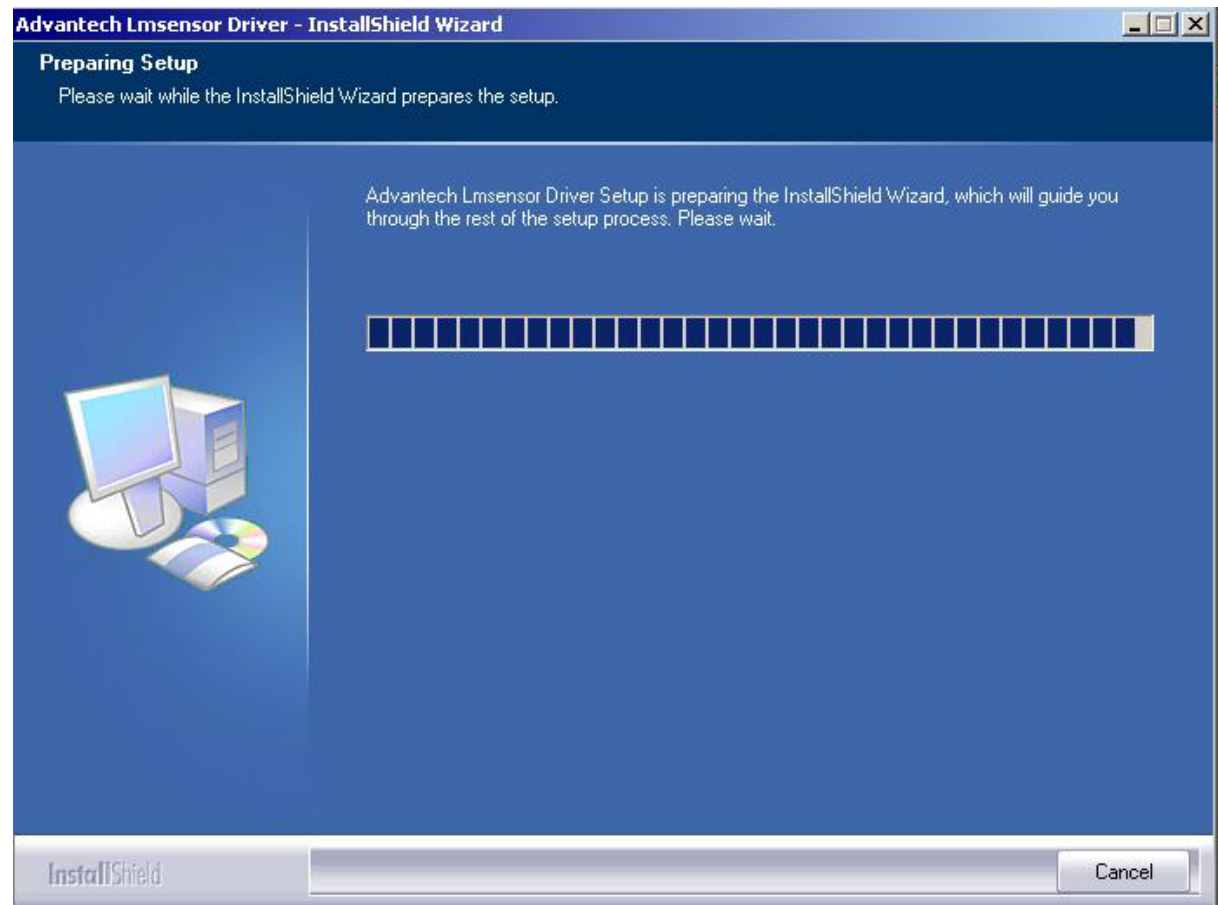
## 1. UNO Lmsensor Installation

This chapter introduces how to install UNO-2160 Lmsensor driver under Windows2K/XP platform.

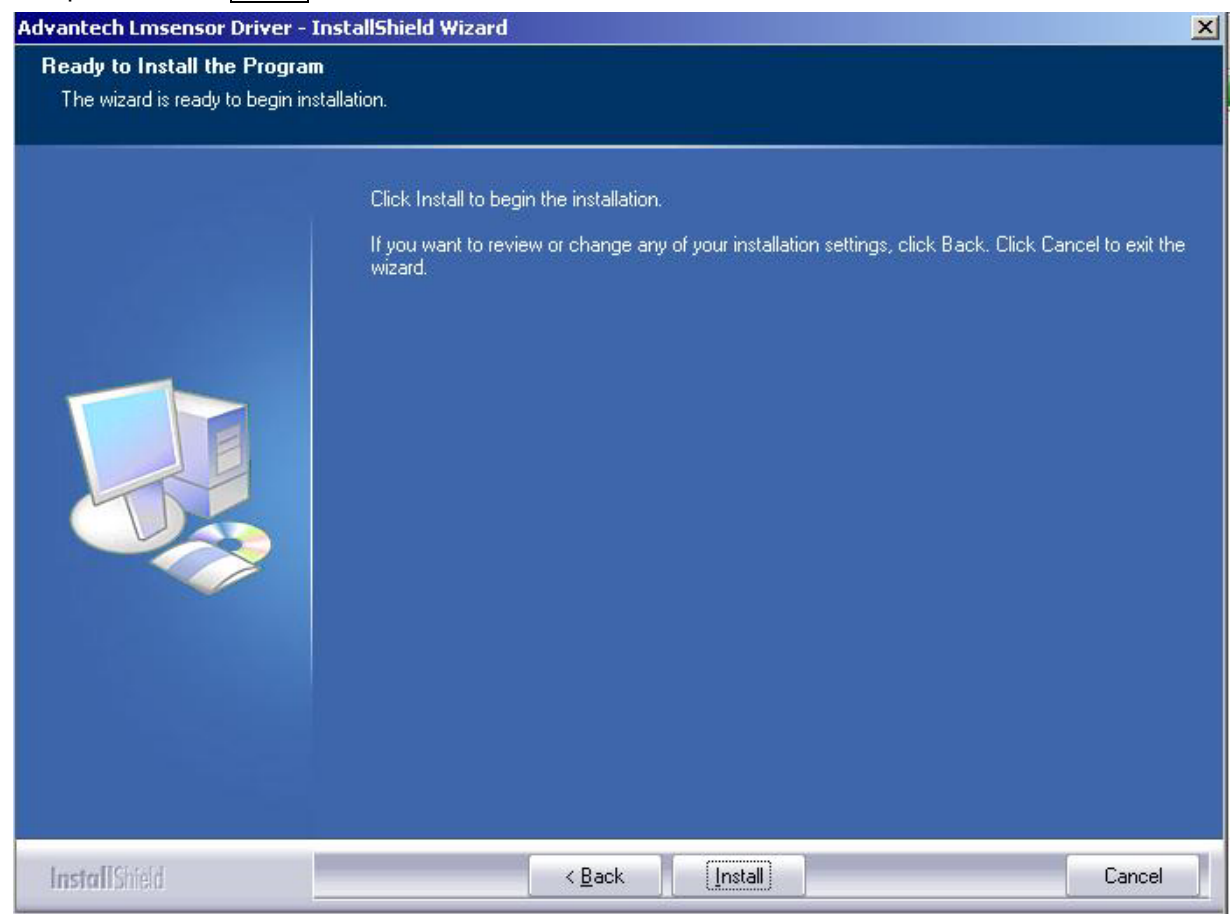
<Step1> Insert the UNO-2000 Driver and Utility CD in the CD-ROM, and execute

**AdvLmsensor.exe** from following path:

<\\UNO-2160\Driver\Lmsensor\Win2K.XP\>

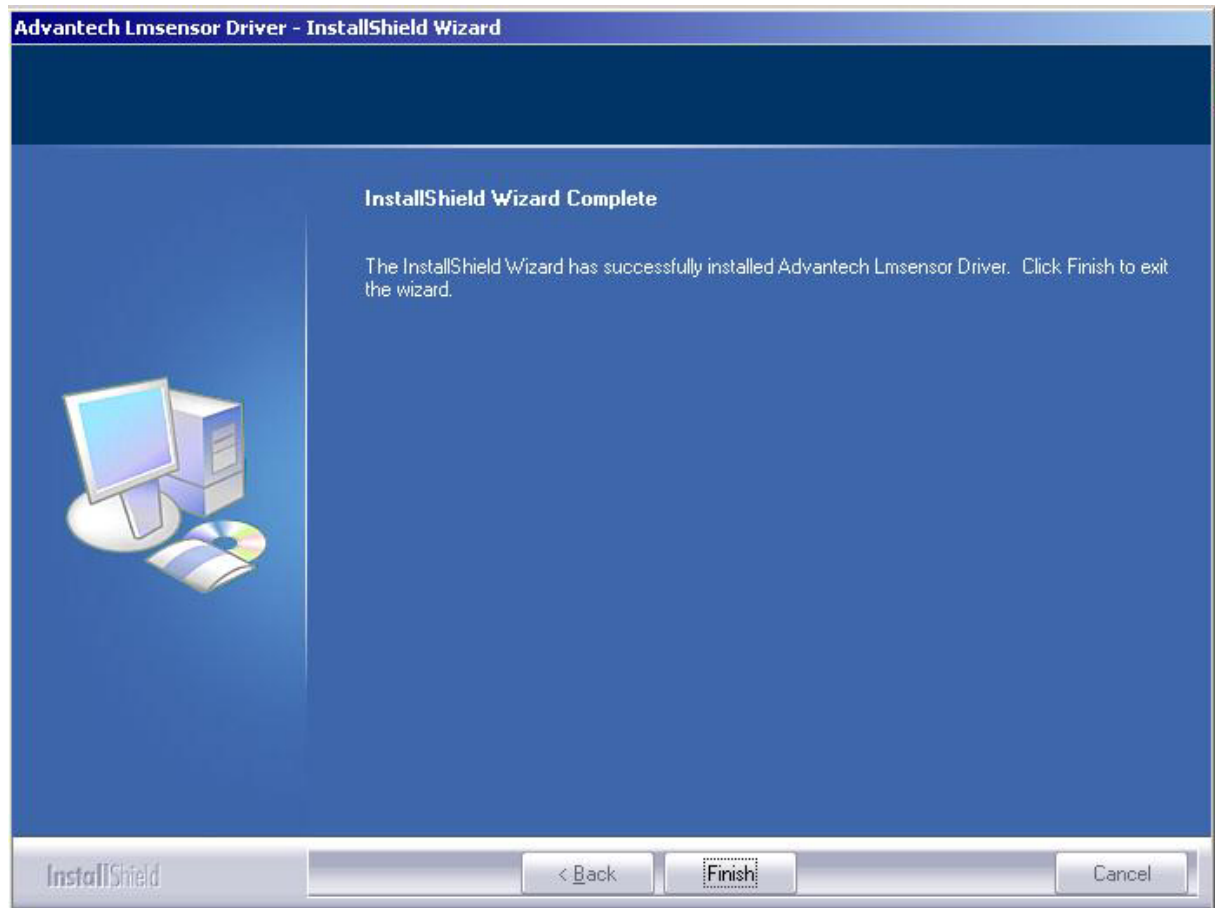


<Step2> Click the **Install** button to install lmsensor driver.



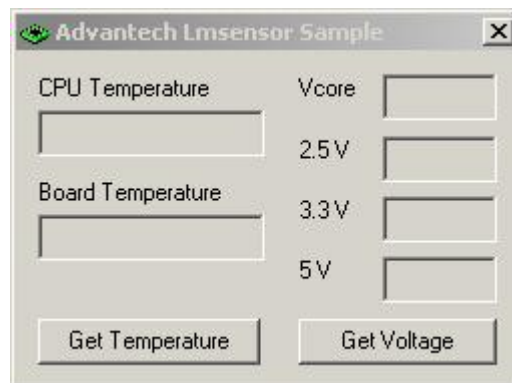
<Step3> Click the **finish** button to finish the Lmsensor driver installation. if UNO-2160 Lmsensor is installed successfully, the relevant applications and sample codes will place in following path:

<C:\Program Files\ADVANTECH\Lmsensor\>.

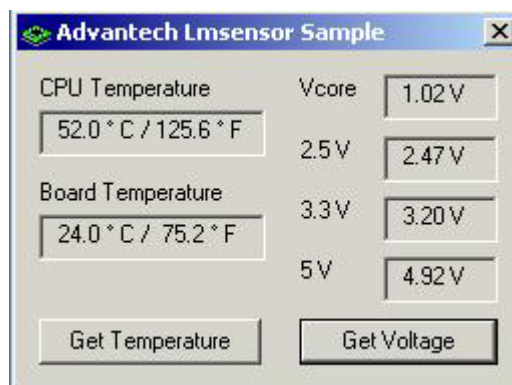


## 2. Execute the Lmsensor Sample Program

<Step1> Please click **Start** → **Programs** → **Advantech** → **Lmsensor** → **Lmesnsor Sample Program**.



<Step2> Press the **Get Temperature** button to get CPU internal temperature and CPU module board temperature. And press the **Get Voltage** button to get operating voltage of CPU module.

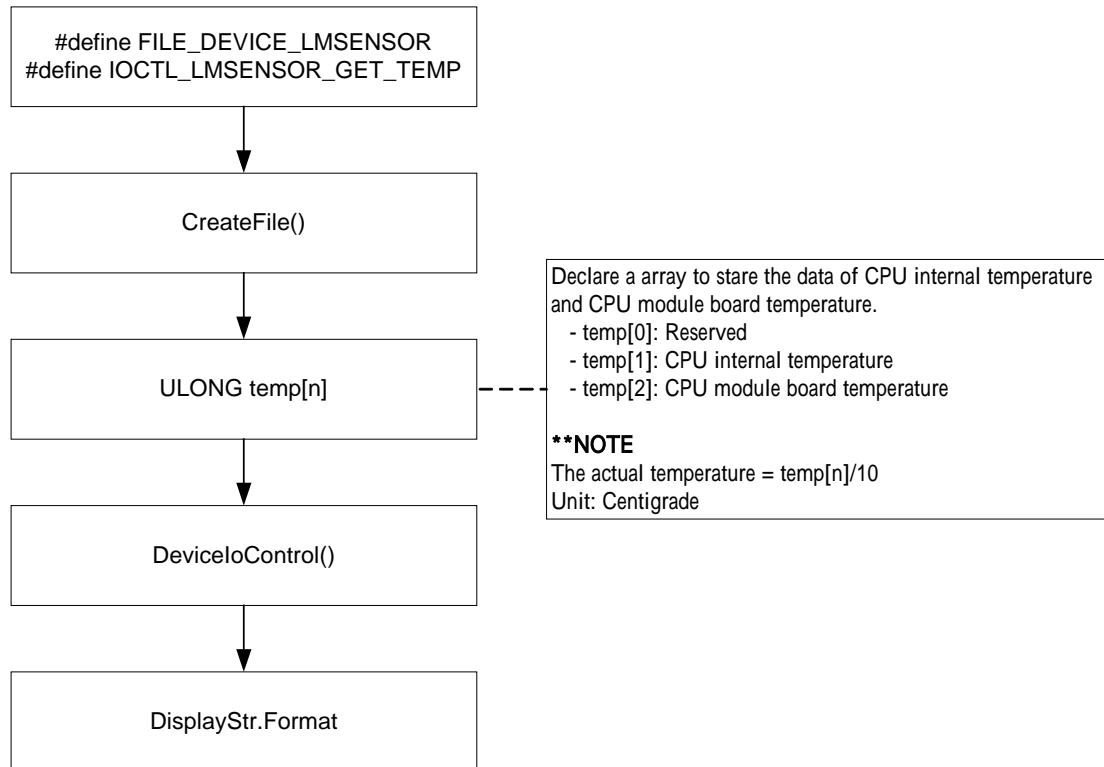


### 3. Lmsensor sample codes

The Lmsensor sample codes are located in following path:

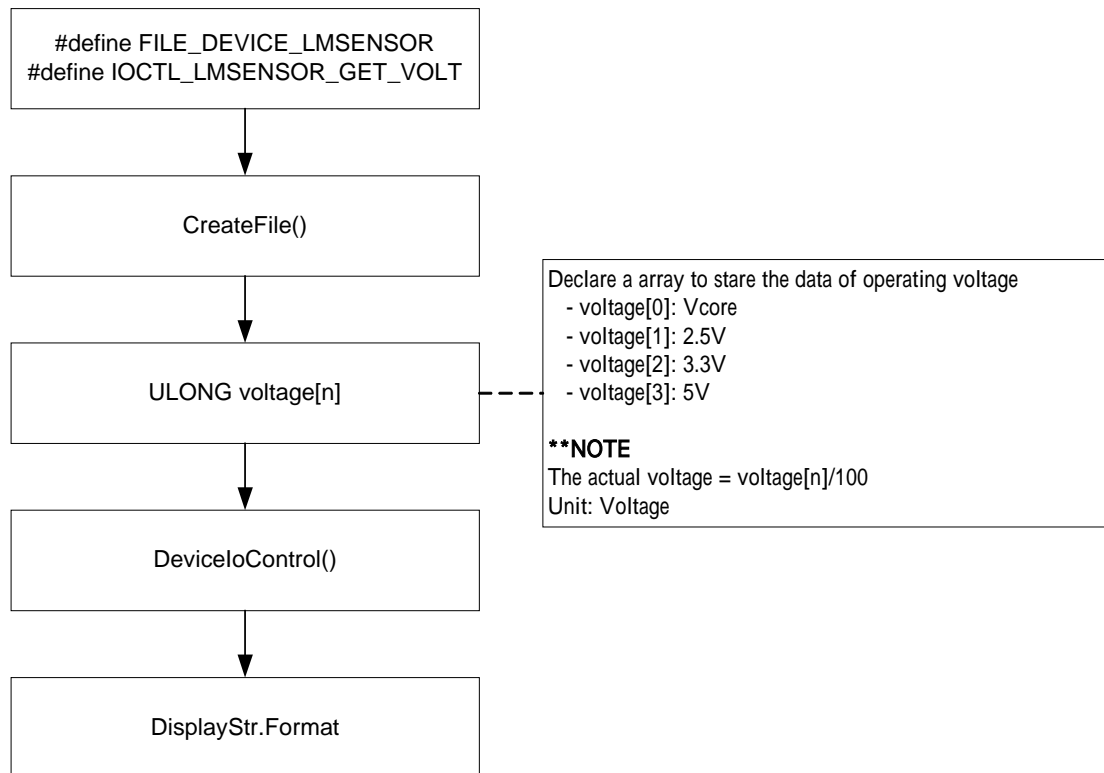
<C:\Program Files\ADVANTECH\Lmsensor\Sample\AdvLmsensorSample>

#### 3.2 The call flow of Lmsensor - Get temperature



\*\* The CreateFile() and DeviceIoControl() are the Microsoft standard API. Further information about these APIs, please refer to Microsoft MSDN.

### 3.1 The call flow of Lmsensor - Get voltage



\*\* The CreateFile() and DeviceIoControl() are the Microsoft standard API. Further information about these APIs, please refer to Microsoft MSDN.