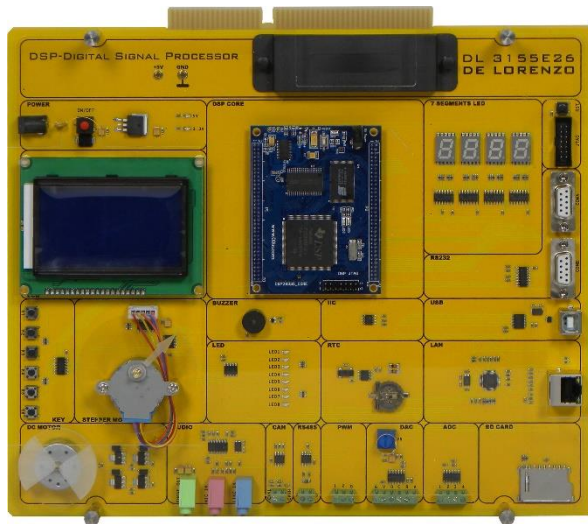# DSP – DIGITAL SIGNAL PROCESSOR

DL 3155E26

The design and construction of electronic circuits to solve practical problems is an essential technique in the fields of electronic engineering and computer engineering.

DSP trainer help students learn the internal architecture and programming of the DSP, floating-point data processing and operation of peripherals, such as UART, IIC, ADC, DAC, Timer, Display, USB, NET and so on.

THEORETICAL TOPICS
- Introduction to the circuit board
- Assembly language program
- C language basic
- C language and assembly mutual calling
- DSP basic arithmetical operation
- Buzzer
- Keypad
- Timer
- External interruption
- Serial communication
- 485 communication
- I2C
- 7-segment LED display
- 1602 LCD display
- 12864 LCD
- sound recording and playing
- RTC
- AD /DA conversion
- AC/DC motor control
- SD card reading and writing
- extended RAM
- internet communication
- USB communication
- FLASH programming
- Finite impulse response (FIR)
- Infinite impulse response(IIR)
- Fast Fourier transform(FFT)

CIRCUIT BLOCKS
- DSP processor
  - High-Performance Static CMOS Technology
  - 150 MHz (6.67-ns Cycle Time)
  - Built-in FLASH 256KB
  - Built-in RAM 36KB
  - Low-Power (1.8-V Core at 135 MHz,1.9-V Core at 150 MHz, 3.3-V I/O)
  - Design JTAG Boundary Scan Support IEEE Standard 1149.1-1990 IEEE Standard Test Access Port and Boundary-Scan Architecture
- Keypad
- Stepper motor
- DC motor
- Buzzer
- 4x seven segment LED display
- LCD display
- 8x status LED
- Audio interface
- IIC interface
- RTC interface
- USB interface
- LAN interface
- RS232 interface
- RS485 interface
- CAN interface
- DAC/ADC interface
- SD card slot

Complete with theoretical and practical manual.

Dimensions of the board: 297x260mm

CAI SOFTWARE:
Each board of the TIME system can be supplied complete with a Student Navigator software that allows students to perform their learning activities through a Personal Computer, without the need for any other documentation.
Ordering code: please add SW after the code of the board (i.e. DL 3155E26SW)

Required:
POWER SUPPLY NOT INCLUDED
Base frame with power supply (completed with connecting cables):
➢ **DL 3155AL3** - Base frame with power supply and interface to pc and virtual instrumentation
➢ **DL 3155AL2** - Base frame with power supply and interface to pc

Basic power supply (connecting cables not included):
➢ **DL 2555ALG -** DC power supply ±5 ±15 Vdc, 1A
➢ **TL 3155AL2 -** Connecting cables
Choosing this power supply, for the execution of the experiments, it is normally required the use of an oscilloscope and two multimeters.