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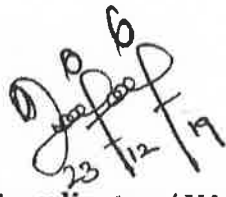
Email:ssmietdgl@gmail.com , Website: www.ssmiet.ac.in

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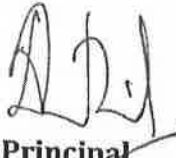
CIRCULAR

23.12.2019

The Department of ECE has planned to conduct the value-added course for II & III ECE is scheduled to be conducted on 04.01.2020 onwards. The main objective of this course is establishing basic hardware and programming knowledge about the advanced technology in electronics and communication. Henceforth, students of second and third year ECE students are requested to attend this course and get benefitted. There is no registration fee.

Coordinator / VAC
Dr.K.Vinoth Kumar

HoD/ECE
Dr.S.Karthigai Lakshmi

Principal
Dr.D.Senthil Kumaran

Department of Electronics and Communication Engineering

VAC on "Embedded Programming"

Students Name list (IV-A)

S.No	Register number	Name of the Student
1	922116106002	ABINAYA D
2	922116106003	AJITHA G
3	922116106009	BALAJI K.G
4	922116106016	DEEPA T
5	922116106017	DEEPIKA R
6	922116106020	DHAMODHARAN A
7	922116106021	DHARANI S
8	922116106023	GEETHA J
9	922116106026	HEMALATHA K
10	922116106027	ISHWARYA V

Faculty Incharges

1.S.Jayakumar,AP/ECE

2.T.Leela Priyadharsini, AP/ECE

HOD/ECE

Dr.S. KARTHIGAI LAKSHMI
Professor & Head
Department of ECE
SSM Institute of Engg & Tech
Dindigul - 624 002

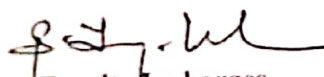# SSM INSTITUTE OF ENGINEERING AND TECHNOLOGY

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Department of Electronics and Communication Engineering

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Dindigul - 624 002

THEORY

The LPC2148 microcontrollers are based on a 32/16 bit ARM7TDMI-S CPU with real time Emulation and embedded trace support, that combines the microcontroller with embedded high speed flash memory ranging from 32 kB to 512 kB. A 128-bit wide memory interface and unique accelerator architecture enable 32-bit code execution at the maximum clock rate. For critical code size applications, the alternative 16-bit Thumb mode reduces code by more than 30 % with minimal performance penalty. Due to their tiny size and low power consumption, LPC2148 are ideal for applications here miniaturization is a key requirement, such as access control and point-of-sale. A blend of serial communications interfaces ranging from a USB 2.0 Full Speed device, multiple UARTS, SPI, SSP to I2Cs and on-chip SRAM of 8 kB up to 40 kB, make these devices very well suited for communication gateways and protocol converters, soft modems, voice recognition and low end imaging, providing both large buffer size and high processing power. Various 32-bit timers, single or dual 10-bit ADC(s), 10-bit DAC, PWM channels and 45 fast GPIO lines with up to nine edge or level sensitive external interrupt pins make these microcontrollers particularly suitable for industrial control and medical systems.

FEATURES

- 16/32-bit ARM7TDMI-S microcontroller in a tiny LQFP64 package.
- 8 to 40 kB of on-chip static RAM and 32 to 512 kB of on-chip flash program memory.
- 128 bit wide interface/accelerator enables high speed 60 MHz operation.
- In-System/In-Application Programming (ISP/IAP) via on-chip boot-loader software.
- Single flash sector or full chip erase in 400 ms and programming of 256 bytes in 1 ms.
- Embedded ICE RT and Embedded Trace interfaces offer real-time debugging with the on-chip Real Monitor software and high speed tracing of instruction execution.

PROCEDURE (keil-µ-vision 4)

1. Desktop → open keil-µ-vision 4 software.

2. Go to file → select New.

3. Go to project → select New µ vision project → Create a new folder in computer (Local

disk D/E) → open the folder → Save a file with folder name.

4. From database → Go to NXP → Select LPC 2148 → Ok → Add file → Ok.

5. Go to target option → Right click source group1 → select add files to group' Source group1

→ Give your folderName.c → Add → Close.

6. Type the program → File → Save as → Filename.c → Save.

7. Build the program → Rebuild.

8. Go to target options → click output → Enable create HEX file → Ok.

9. Switch ON he kit → Press reset button to load the new program.

10. Desktop → open flash magic.

11. **Step(i)** Select LPC 2148 → select Comport →Set baudrate as 9600 → interface None

→ Set oscillator frequency as 12 MHz.

Step (ii) Enable erase all flash-code.

Step (iii) Go to browse and select HEX file.

Step (iv) Select verify after programming.

Step (v) Click start → Now the program is downloaded to kit.

12. Release reset button → View the output.
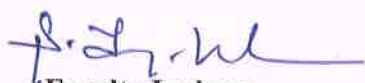
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Department of Electronics and Communication Engineering

VAC on "Embedded Programming"
Attendance sheet

S.No	Register number	Name of the Student	25.01.2020	29.02.2020	28.03.2020
1	922116106002	ABINAYA D	P	P	P
2	922116106003	AJITHA G	P	P	P
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10	922116106027	ISHWARYA V	P	P	P

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SSM Institute of Engineering and Technology
Dept of ECE-VAC-Embedded programming-Test (10*1=10)

1. **Which memory storage is widely used in PCs and Embedded Systems?**

   a) EEPROM

   b) Flash memory

   c) SRAM

   d) DRAM

2. **Which level simulates the algorithms that are used within the embedded systems?**

   a) algorithmic level

   b) switch level

   c) gate level

   d) circuit level

3. **How an embedded system communicate with the outside world?**

   a) Memory

   b) Output

   c) Peripherals

   d) Input

4. **Which of the following helps in reducing the energy consumption of the embedded system?**

   a) emulator

   b) debugger

   c) simulator

   d) compilers

5. **Which of the following unit protects the memory?**

   a) memory management unit

   b) peripheral unit

   c) execution unit

   d) bus interface unit

6. Which of the following offers external chips for memory and peripheral interface circuits?

a) Embedded system

b) Peripheral system

c) Microcontroller

d) Microprocessor

7. **What is approximate data access time of SRAM?**

a) 2ns

b) 10ns

c) 60ns

d) 4ns

8. **What does PCM stand for?**

a) peculiar code modulation

b) pulse codec machine

c) pulse code modulation

d) peripheral c

9. **Which interrupts generate fast interrupt exception?**

a) software interrupt

b) hardware interrupt

c) internal interrupt

d) external interrupt

10. **Which one of the following offers CPUs as integrated memory or peripheral interfaces?**

a) Memory system

b) Embedded system

c) Microcontroller

d) Microprocessor

SSM Institute of Engineering and Technology
VAC-Embedded Programming-Test (10*1=10)   Duration 10 mins

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   9/10

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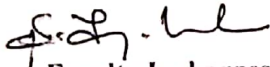
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VAC on "Embedded Programming"

Mark Statement

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1	922116106002	ABINAYA D	10
2	922116106003	AJITHA G	8
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10	922116106027	ISHWARYA V	10

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
VAC on "Embedded Programming"
25.01.2020, 29.02.2020 & 28.03.2020
FEEDBACK FORM

Name of the Participant: AJITHA G.
Year/Sem : IV / VII

S.No	Question	Excellent	Good	Satisfactory
1	Did the VAC enlighten your mind	✓		
2	Whether your expectation gets satisfied		✓	
3	Whether the session was interactive	✓		
4	Knowledge gained from this VAC is		✓	
5	Was the VAC well organized	✓		

Comments on session:

Well organized.

Signature of the Participant

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VAC on "Embedded Programming"
25.01.2020, 29.02.2020 & 28.03.2020
FEEDBACK FORM

Name of the Participant: DHAMODHARAN A
Year/Sem : IV | VII

S.No	Question	Excellent	Good	Satisfactory
1	Did the VAC enlighten your mind	✓		
2	Whether your expectation gets satisfied		✓	
3	Whether the session was interactive		✓	
4	Knowledge gained from this VAC is	✓		
5	Was the VAC well organized		✓	

Comments on session:

Signature of the Participant

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
VAC on "Embedded Programming"
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FEEDBACK FORM

Name of the Participant: Geetha J
Year/Sem : IV/VII .

S.No	Question	Excellent	Good	Satisfactory
1	Did the VAC enlighten your mind	✓		
2	Whether your expectation gets satisfied	✓		
3	Whether the session was interactive		✓	
4	Knowledge gained from this VAC is		✓	
5	Was the VAC well organized	✓		

Comments on session:

_____

_____

Signature of the Participant

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FEEDBACK FORM

Name of the Participant: Ishwarya V
Year/Sem : IV /VII

S.No	Question	Excellent	Good	Satisfactory
1	Did the VAC enlighten your mind	✓		
2	Whether your expectation gets satisfied	✓		
3	Whether the session was interactive	✓		
4	Knowledge gained from this VAC is		✓	
5	Was the VAC well organized		✓	

Comments on session:

_____

_____

Signature of the Participant

Participation Certificate

This certificate is proudly Presented to

Balaji K.G

SSM Institute of Engineering and Technology for partication in the Value Added Course -Embedded Programming on 25.01.2020, 29.02.2020 and 28.03.2020.