

# Мікропроцесорна техніка

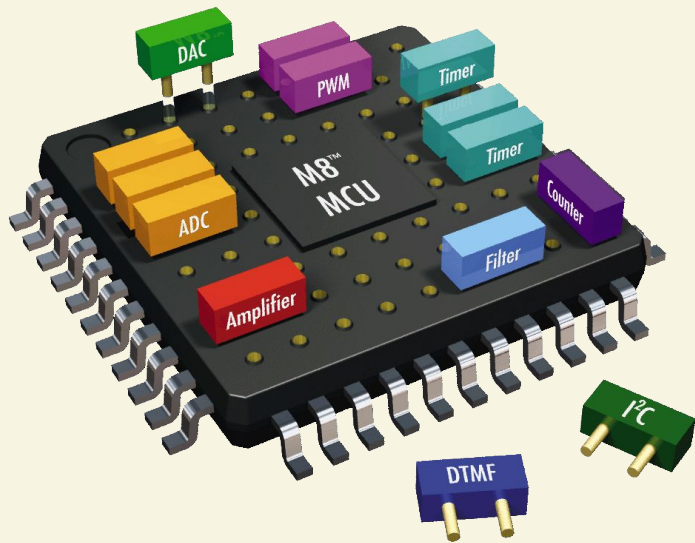
(лекція 1)  
Благітко Б.Я.  
2019 р.

**PSoC Creator 4.2**  
**Designing with PSoC 3/5**



- Знайомство з PSoC 3/5
- Основні можливості мікроконтролера
- Інструментальні засоби розробки PSoC 3/5 Development kit
- Програмні засоби розробки Creator 3.0

# Що таке PSoC 3/5?



PSoC 3/5 = Програмована система на кристалі для реалізації вбудовуваних систем **низької вартості з мінімальною кількістю зовнішніх компонент**

**PSoC 3/5 включає в себе можливість обробки аналогових, цифрових і змішаних сигналів, а також можливість формування аналогових і цифрових сигналів, охоплюючи широкий спектр прикладних задач**

- **Особливості PSoC 3/5:**
  - Реконфігуровувані Аналогові модулі:
  - Вбудовані АЦП і ЦАП, аналогові фільтри різних типів, підсилювачі аналогових сигналів, компаратори, аналогові модулятори і т. д.
  - Реконфігуровувані Цифрові модулі:
  - Вбудовані таймери, лічильники, PWM, UART, SPI, IrDA, I2C і т. д.
  - Flash від 4КВ до 32КВ для зберігання програми
  - SRAM от 256В до 2КВ для зберігання даних
  - Процесорне ядро - МК8051, CISC, 4MIPS

## Фільтри

- 2-4 полюсні фільтри на комутованих конденсаторах низьких частот, смугові, загороджувальні, верхніх частот

## Підсилювачі

- Підсилювач із програмованим коефіцієнтом підсилення
- Інструментальні підсилювачі
- Інвертуючі підсилювачі

## Програмовані компаратори

- Компаратор із програмованим порогом спрацювання
- Тригер Шмідта із програмованим порогом спрацювання

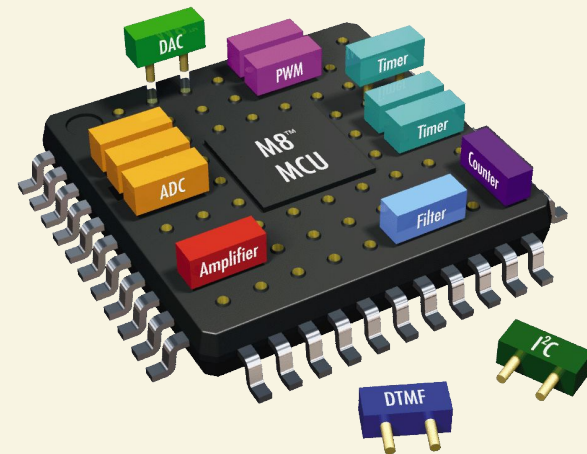
## DTMF генератор і детектор

## А/Ц Перетворювачі

- Послідовного наближення
- Сигма-дельта 8-14 біт
- Накоплювальний 8-14 біт

## Ц/А Перетворювачі

- 6, 8, и 9-бітні ЦАП
- 6 и 8-бітні перемножуючі ЦАП



8, 16, 24, 32-бітні таймери

8, 16, 24, 32-бітні лічильники імпульсів

8, 16-бітні ШІМ

8, 16-бітні Dead Band Генератори

- (генерація 2-о фазних сигналів для управління силовими ключами)

Генератори псевдо-випадкових сигналів (PRS)

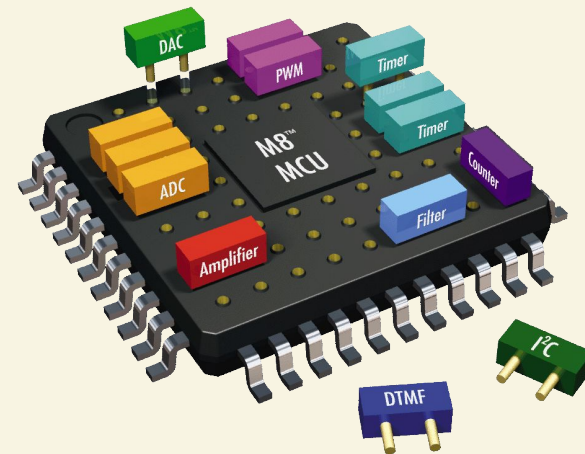
Генератори цифрових контрольних сум (CRC)

I<sup>2</sup>C майстер/підлеглий

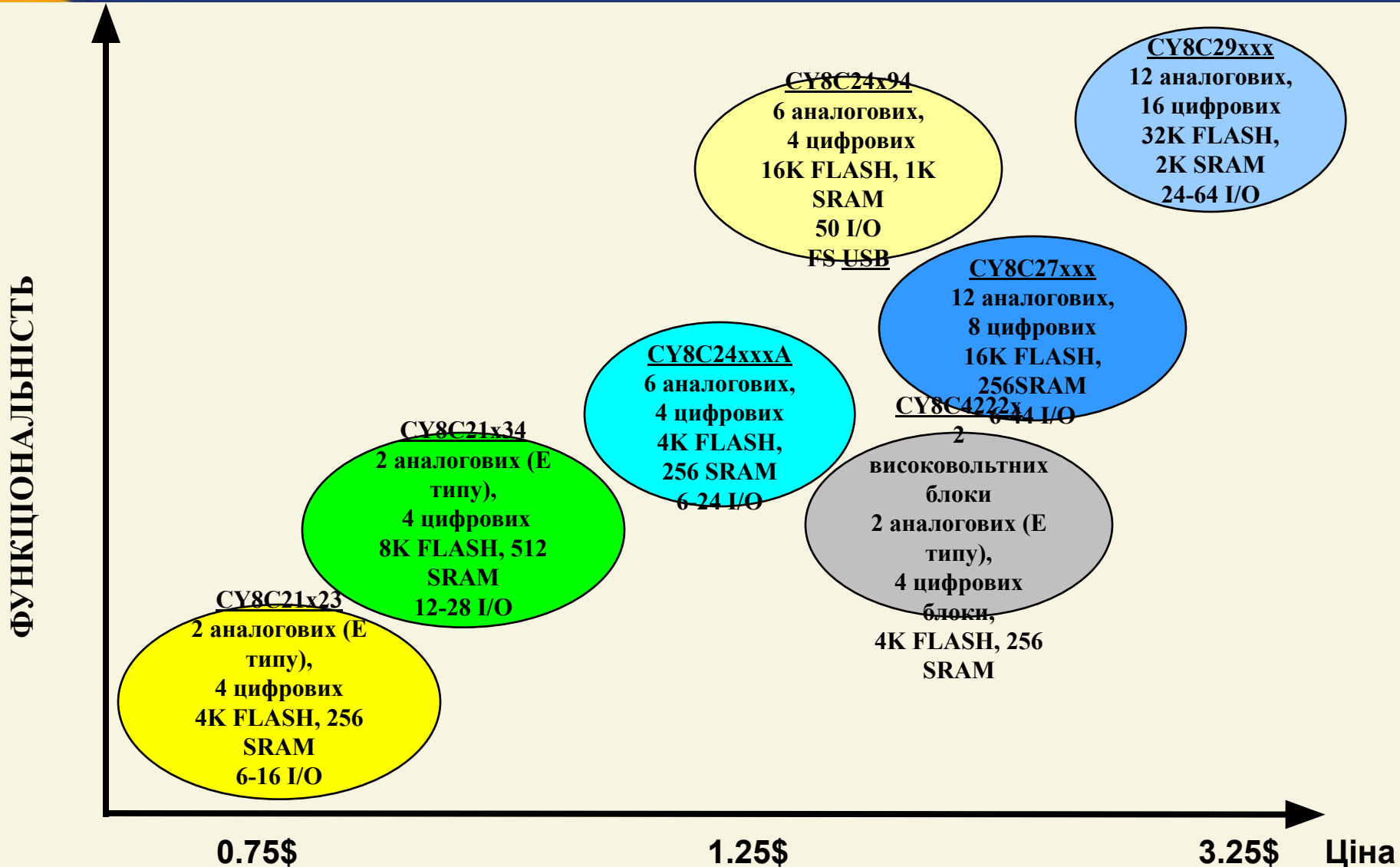
SPI майстри/підлегли

Повнодуплексні UART

IrDA приймачі та передавачі









**Всі кристали сімейства PSoC не містять Pb починаючи з 2005 року!**

- Номери елементів, які не містять Pb перед температурним кодом мають мітку 'X'
- Наприклад:

Стандартний номер елемента = CY8C27443-24PI

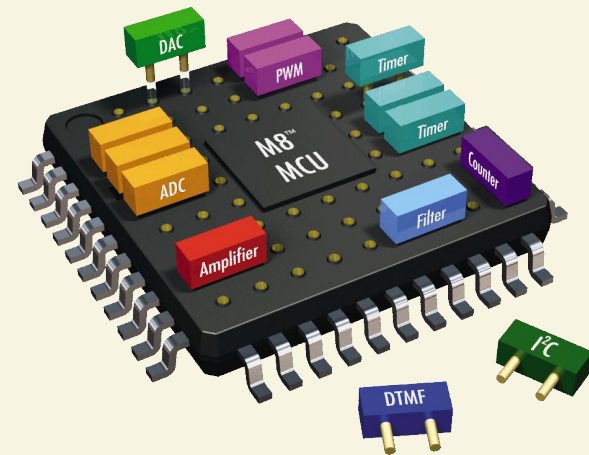
*Номер елемента,*

*який не містить Pb*

*= CY8C27443-24PXI*

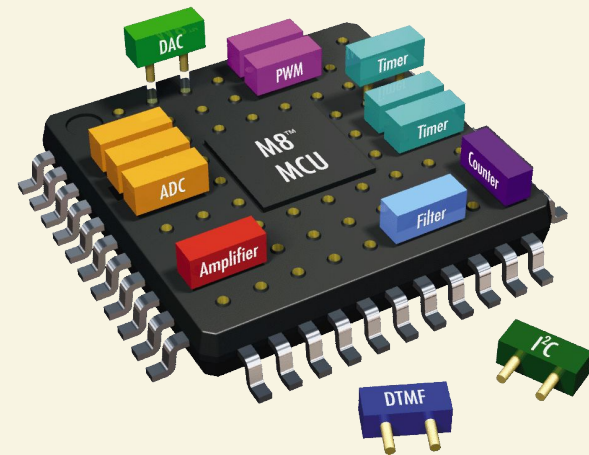


- Інтегроване середовище розробника PSoC Creator
- Оцінювальні плати
- Програматори
- Апаратні емулятори



## PSoC Creator – це:

- Інтуїтивний інтерфейс
- Простота з'єднань
- Підтримка динамічної реконфігурації процесора



**Оптимальними для PSoC являються задачі, коли необхідна обробка аналогових сигналів на апаратному рівні (підсилення, фільтрація, АМ/ФМ модуляція, демодуляція) із наступним перетворенням в цифрову форму в смузі аналогових сигналів до 100 кГц.**

**Виграш полягає в переносі зовнішніх дискретних компонентів у середину процесора.**

PSoC Creator 2.1

File Edit View Debug Project Build Tools Window Help

Workspace Explorer

Source Components Datasheets Results

**Start Page**

PSoC® Creator™

简体中文 日本語 한국어 English

**Recent Projects**

- HelloWorld\_Blinky01.cywrk
- CapSense\_CSD\_Design01...
- CapSense\_CSD\_Design01...
- CharLCD\_CustomFont01.c...
- CharLCD\_CustomFont01.c...

Create New Project...  
Open Existing Project...

**Getting Started**

- PSoC Creator Start Page
- Quick Start Guide
- Intro to PSoC
- Intro to PSoC Creator
- PSoC Creator Training
- Help Tutorials
- Getting Started With PSoC 3
- Getting Started With PSoC 5

**Examples and Kits**

- Find Example Project...
- No Kit Packages Installed

**PSoC Creator News and Information**

**Happy Lunar New Year!**  
Posted on 02/11/2013

Gong Xi Fa Cai! As many of my friends and colleagues are celebrating the New Year and welcoming in the year of the water snake, I wanted to take a minute and wish you all well. May the New Year bring each of you prosperity, good luck and a new PSoC design. ....  
[Read More](#)

**Tips + Tricks: Menu Customization**  
Posted on 01/24/2013

Did you know you can create a customized menu in PSoC® Creator? Right click in a blank area of the top menu and select customize from the

Notice List

0 Errors 0 Warnings

De... File Error L

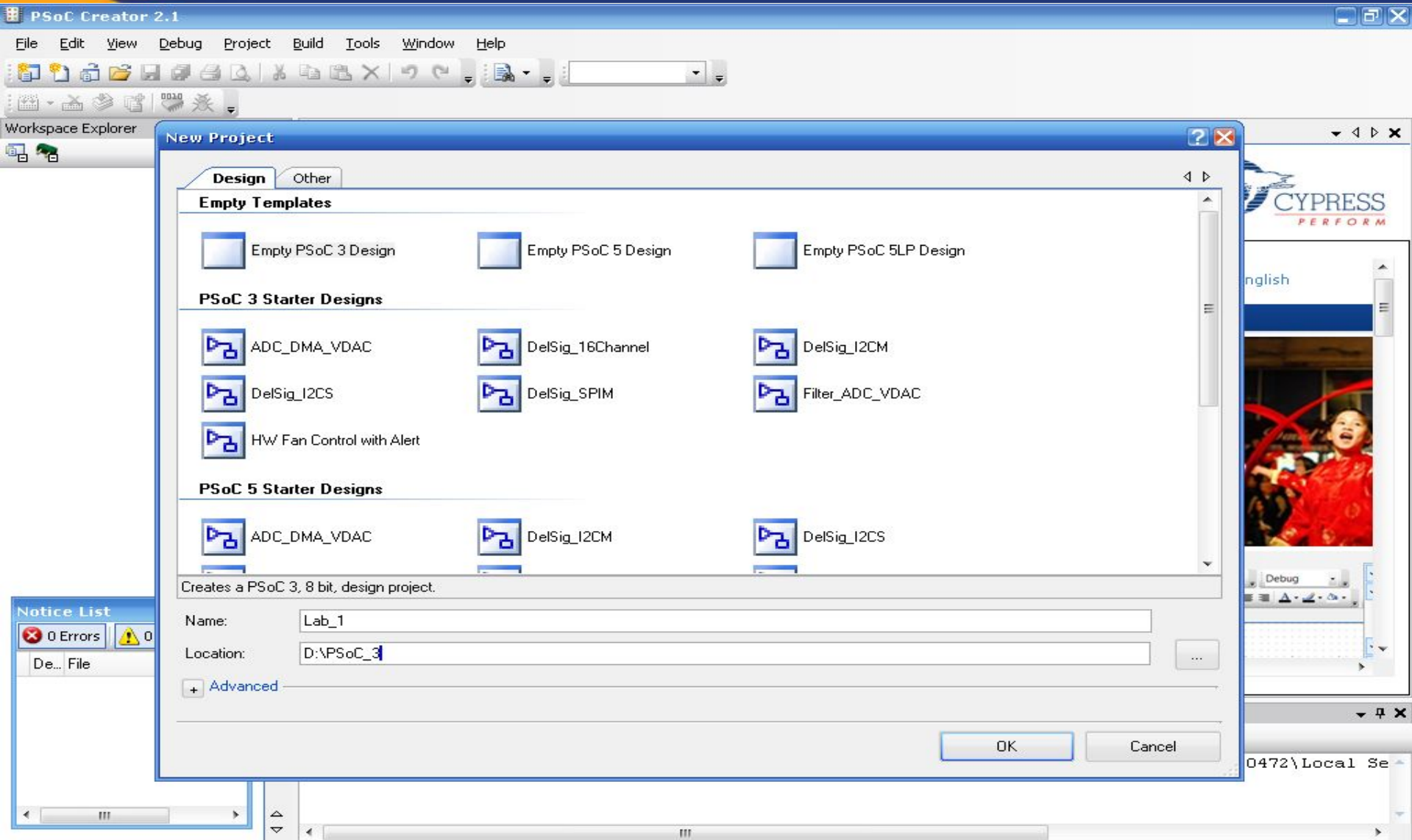
Output

Show output from: All

Log file for this session is located at: C:\Documents and Settings\Admin.MICROSOFT-7D0472\Local Se



# File – New - Projekt



The screenshot displays the PSoC Creator 2.1 application window. The main menu bar includes File, Edit, View, Debug, Project, Build, Tools, Window, and Help. The toolbar contains various icons for file operations and project management. The 'New Project' dialog box is open, showing the 'Design' tab. It lists several project templates under three categories: 'Empty Templates', 'PSoC 3 Starter Designs', and 'PSoC 5 Starter Designs'. The 'Name' field is set to 'Lab\_1' and the 'Location' field is set to 'D:\PSoC\_3'. The 'Advanced' section is expanded. The 'Notice List' panel on the left shows '0 Errors' and '0 Warnings'. The status bar at the bottom indicates 'Ready' and '0 Errors 0 Warnings 0 Notes'.

**PSoc Creator 2.1**

File Edit View Debug Project Build Tools Window Help

Workspace Explorer

**New Project**

Design Other

**Empty Templates**

- Empty PSoC 3 Design
- Empty PSoC 5 Design
- Empty PSoC 5LP Design

**PSoC 3 Starter Designs**

- ADC\_DMA\_VDAC
- DelSig\_16Channel
- DelSig\_I2CM
- DelSig\_I2CS
- DelSig\_SPIM
- Filter\_ADC\_VDAC
- HW Fan Control with Alert

**PSoC 5 Starter Designs**

- ADC\_DMA\_VDAC
- DelSig\_I2CM
- DelSig\_I2CS

Creates a PSoC 3, 8 bit, design project.

Name: Lab\_1

Location: D:\PSoC\_3

+ Advanced

OK Cancel

Notice List

0 Errors 0 Warnings

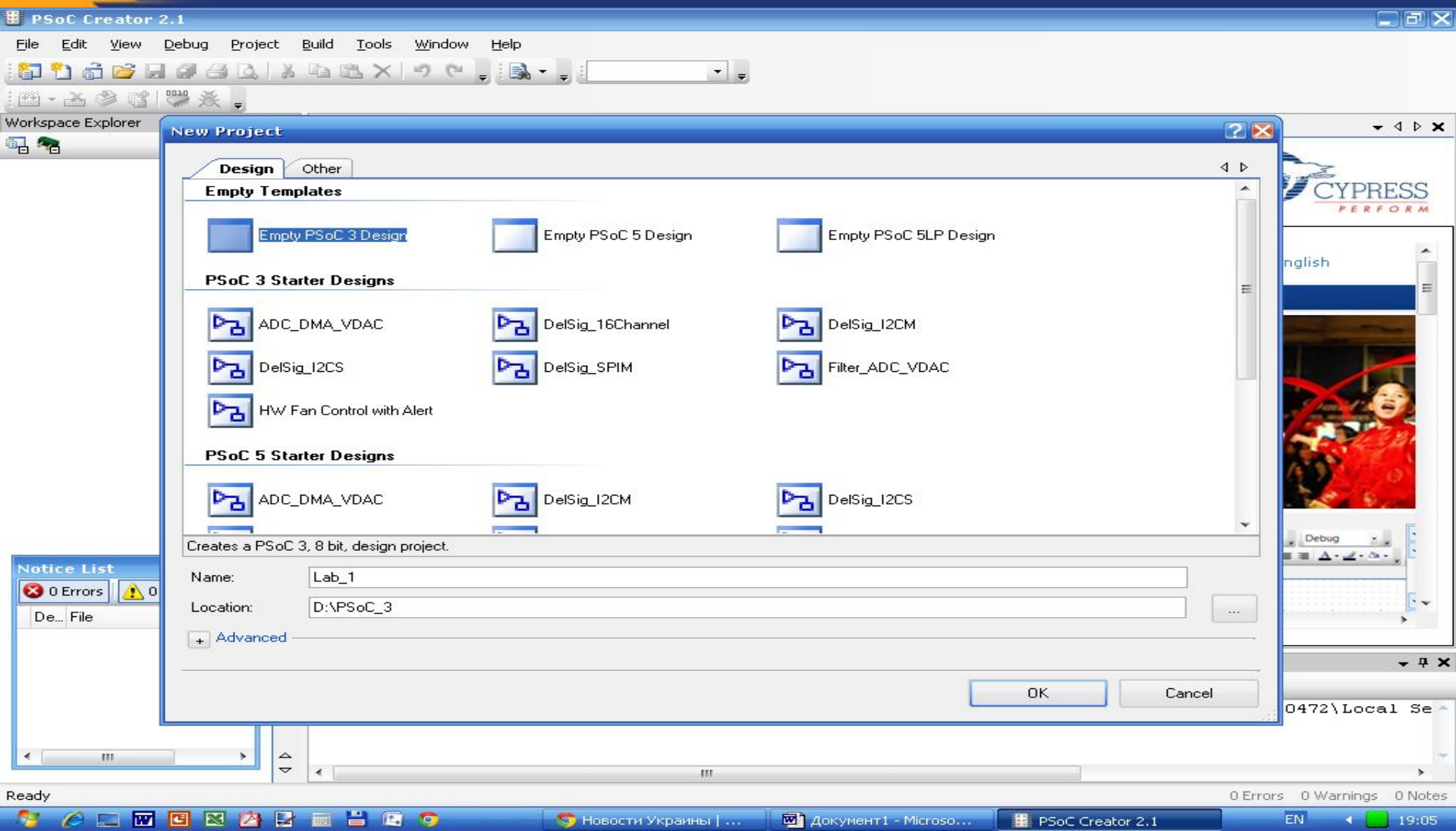
De... File

Ready

0 Errors 0 Warnings 0 Notes

EN 19:02

# Empty PSoC 3/5 Design



PSoC Creator 2.1

File Edit View Debug Project Build Tools Window Help

Workspace Explorer

**New Project**

Design Other

**Empty Templates**

- Empty PSoC 3 Design
- Empty PSoC 5 Design
- Empty PSoC 5LP Design

**PSoC 3 Starter Designs**

- ADC\_DMA\_VDAC
- DelSig\_16Channel
- DelSig\_I2CM
- DelSig\_I2CS
- DelSig\_SPIM
- Filter\_ADC\_VDAC
- HW Fan Control with Alert

**PSoC 5 Starter Designs**

- ADC\_DMA\_VDAC
- DelSig\_I2CM
- DelSig\_I2CS

Creates a PSoC 3, 8 bit, design project.

Name: Lab\_1

Location: D:\PSoC\_3

+ Advanced

OK Cancel

Notice List

0 Errors 0 Warnings 0 Notes

0472\Local Se

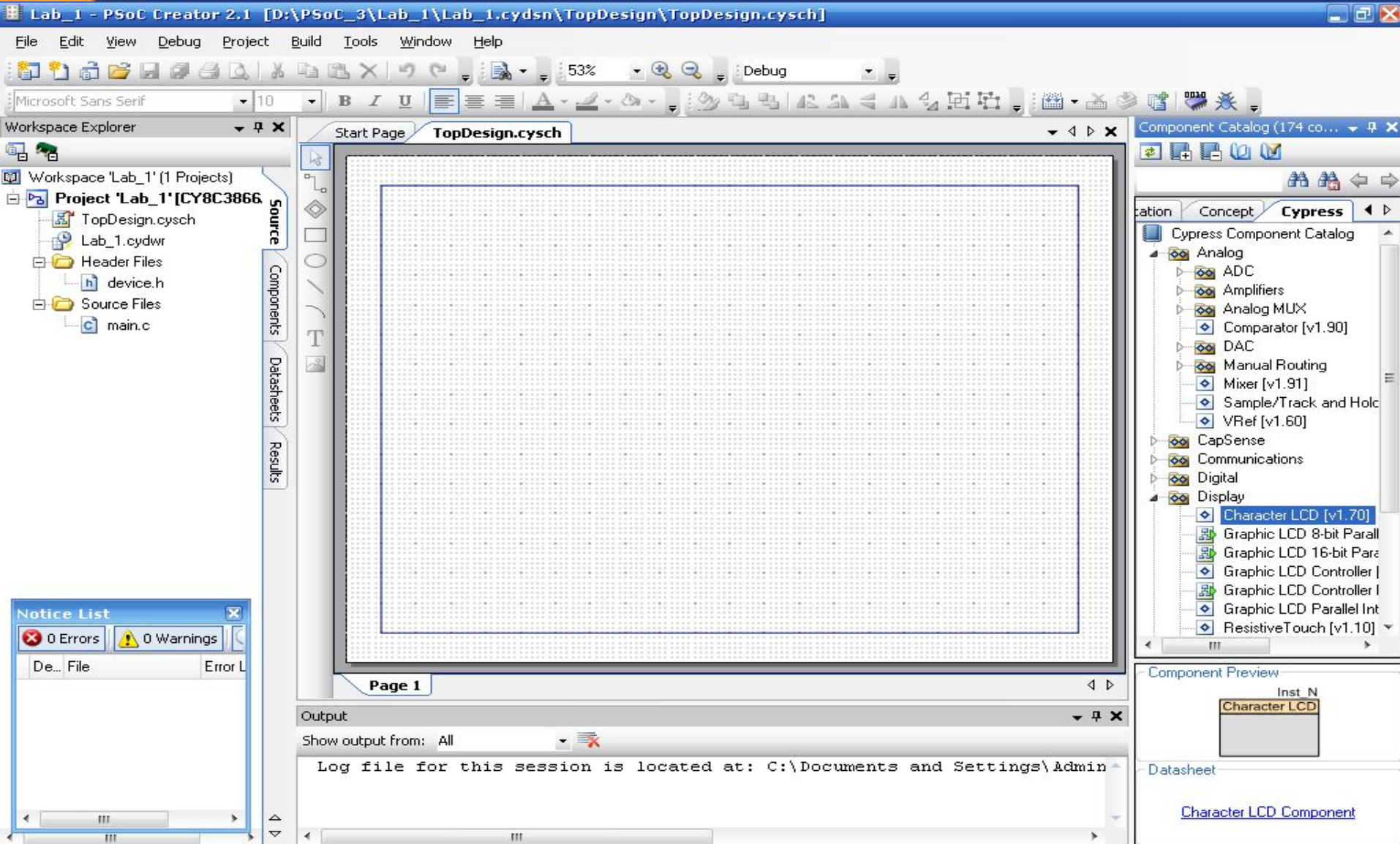
Ready

0 Errors 0 Warnings 0 Notes

EN 19:05



# Custom Window

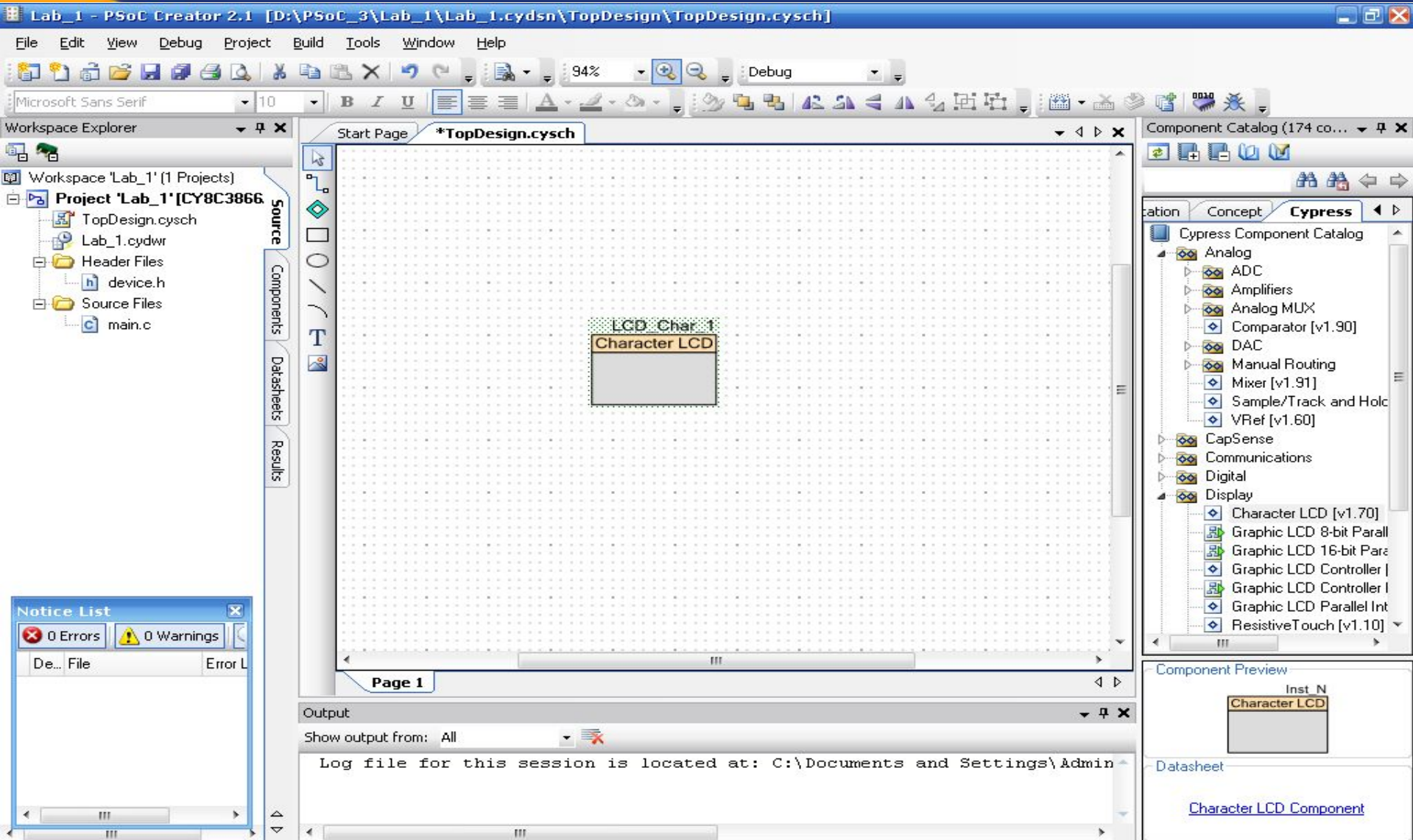


The screenshot displays the PSoC Creator 2.1 software interface. The main workspace shows a custom window design on a grid, labeled "Page 1". The interface includes a menu bar (File, Edit, View, Debug, Project, Build, Tools, Window, Help), a toolbar, and a workspace explorer on the left showing the project structure for "Project 'Lab\_1' [CY8C3866]". The workspace explorer lists files such as "TopDesign.cysch", "Lab\_1.cydwr", "Header Files", "device.h", "Source Files", and "main.c".

On the right side, the "Component Catalog" is open, showing a tree view of components under the "Cypress" category. The "Display" category is expanded, and "Character LCD [v1.70]" is selected. Below the catalog, the "Component Preview" section shows a preview of the "Character LCD" component. The "Datashheet" section below it contains a link to the "Character LCD Component" datashheet.

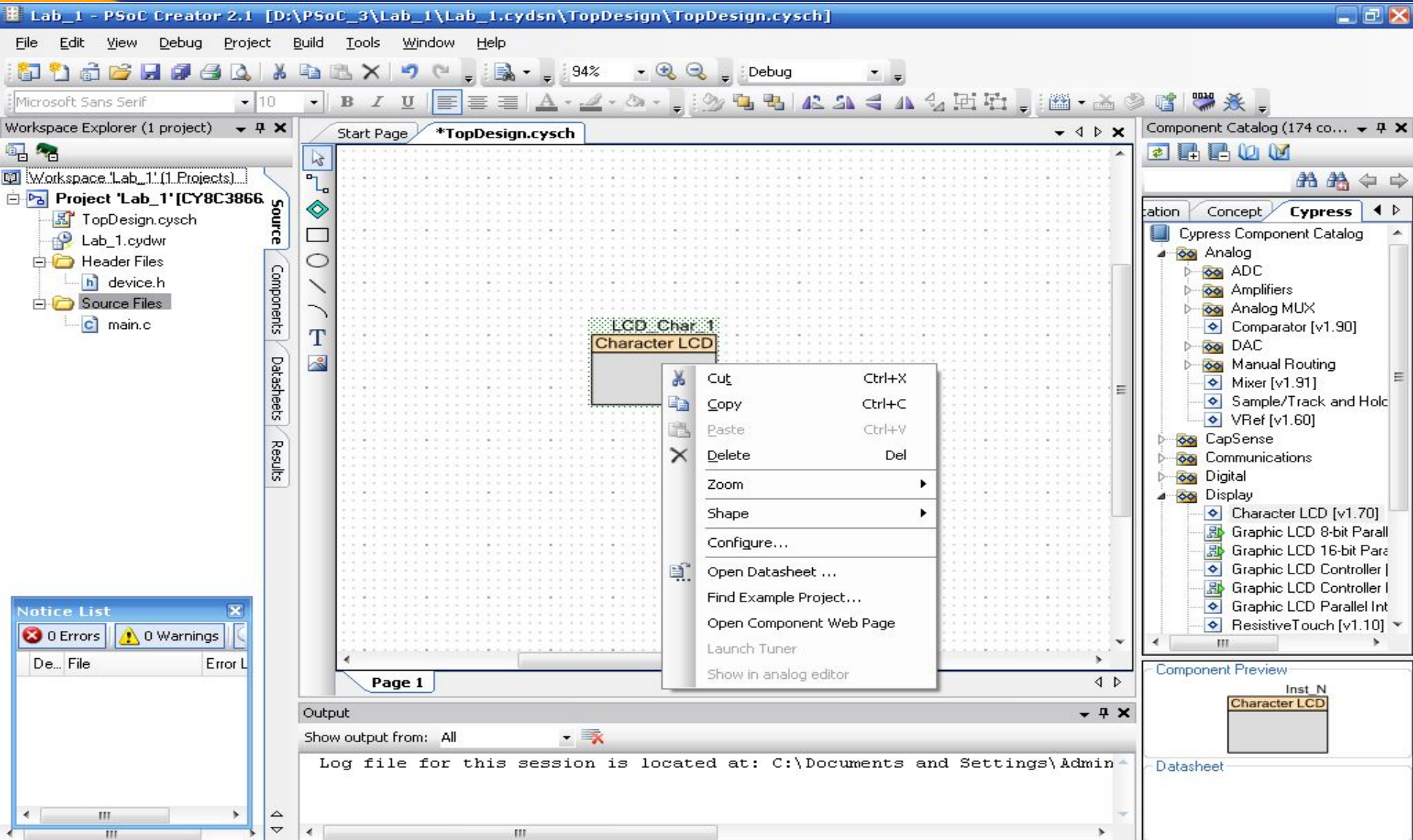
In the bottom left, a "Notice List" window is open, showing "0 Errors" and "0 Warnings". The "Output" window at the bottom center displays the message: "Log file for this session is located at: C:\Documents and Settings\Admin...".

# Character LCD



The screenshot displays the PSoC Creator 2.1 software interface. The main workspace shows a schematic page titled "Page 1" with a grid background. A component labeled "LCD Char 1" and "Character LCD" is being placed on the page. The Component Catalog on the right lists various components, with "Character LCD [v1.70]" selected under the "Display" category. The Notice List window in the bottom left shows "0 Errors" and "0 Warnings". The Output window at the bottom displays the message: "Log file for this session is located at: C:\Documents and Settings\Admin...".

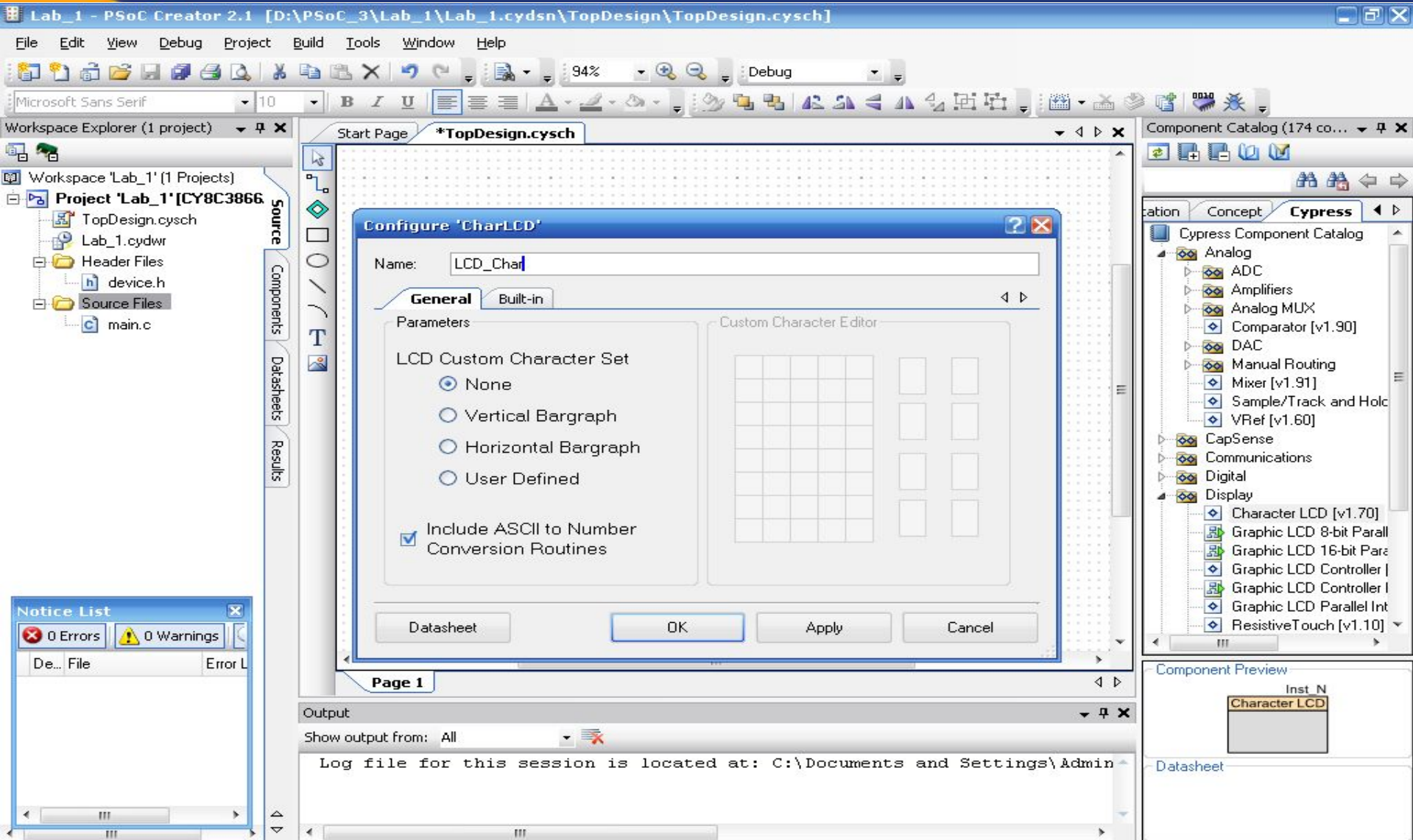
# Character LCD



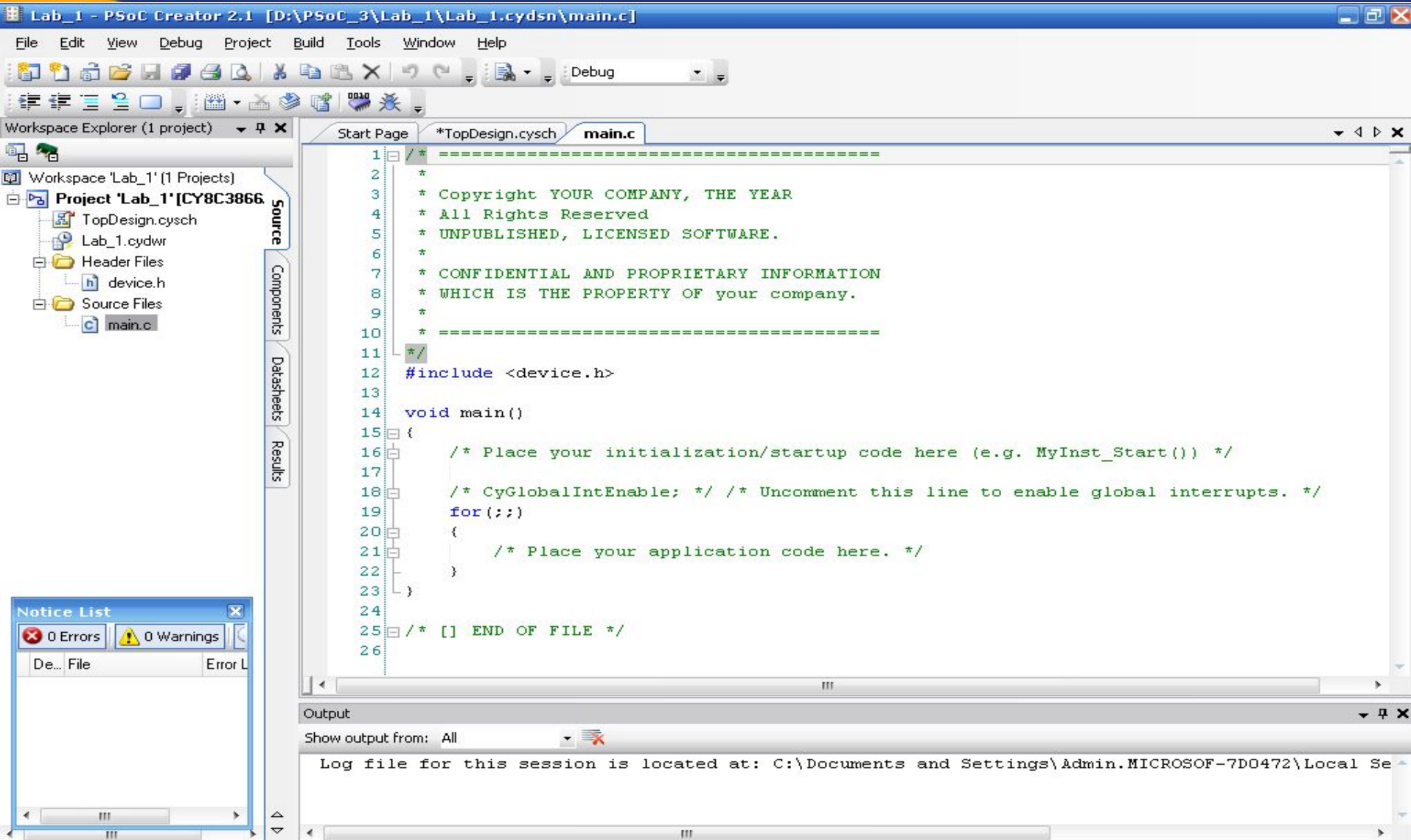
The screenshot shows the PSoC Creator 2.1 IDE. The main workspace displays a schematic with a grid. A component labeled "Character LCD" is being placed on the grid. A context menu is open over the component, listing actions such as Cut, Copy, Paste, Delete, Zoom, Shape, Configure..., Open Datasheet..., Find Example Project..., Open Component Web Page, Launch Tuner, and Show in analog editor. The Component Catalog on the right shows the "Character LCD [v1.70]" component selected under the "Display" category. The Notice List in the bottom left shows 0 Errors and 0 Warnings. The Output window at the bottom displays the log file path: "Log file for this session is located at: C:\Documents and Settings\Admin...".



# Configure LCD



The screenshot displays the PSoC Creator 2.1 software interface. The main window shows the 'Configure CharLCD' dialog box for a component named 'LCD\_Char'. The dialog has two tabs: 'General' and 'Built-in'. Under the 'General' tab, there are two sections: 'Parameters' and 'Custom Character Editor'. The 'Parameters' section includes radio buttons for 'None', 'Vertical Bargraph', 'Horizontal Bargraph', and 'User Defined', with 'None' selected. There is also a checked checkbox for 'Include ASCII to Number Conversion Routines'. The 'Custom Character Editor' section contains a grid for defining characters. At the bottom of the dialog are buttons for 'Datasheet', 'OK', 'Apply', and 'Cancel'. The background shows the PSoC Creator workspace with a project tree on the left, a component catalog on the right, and a notice list at the bottom left. The status bar at the bottom indicates 'Ready' and shows system information like '{X=295,Y=131}', '0 Errors 0 Warnings 0 Notes', and the time '19:25'.



The screenshot displays the PSoC Creator 2.1 IDE interface. The main window shows the source code for `main.c` within a project named `Project 'Lab_1' [CY8C3866]`. The code includes a copyright notice and a `main()` function with several comments for initialization and application code.

```
1  /* -----  
2  *  
3  * Copyright YOUR COMPANY, THE YEAR  
4  * All Rights Reserved  
5  * UNPUBLISHED, LICENSED SOFTWARE.  
6  *  
7  * CONFIDENTIAL AND PROPRIETARY INFORMATION  
8  * WHICH IS THE PROPERTY OF your company.  
9  *  
10 * -----  
11 */  
12 #include <device.h>  
13  
14 void main()  
15 {  
16     /* Place your initialization/startup code here (e.g. MyInst_Start()) */  
17  
18     /* CyGlobalIntEnable; */ /* Uncomment this line to enable global interrupts. */  
19     for (;;)   
20     {  
21         /* Place your application code here. */  
22     }  
23 }  
24  
25 /* [] END OF FILE */  
26
```

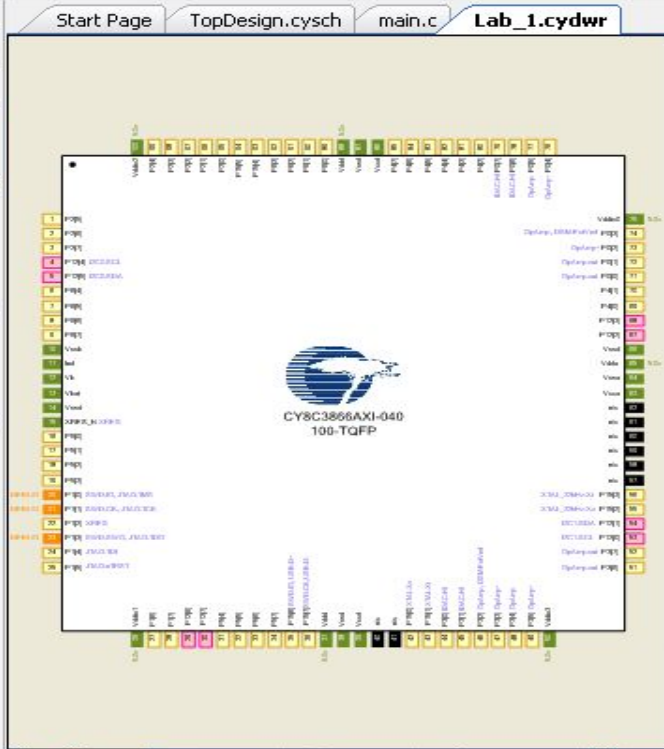
A `Notice List` window is open in the bottom-left corner, showing `0 Errors` and `0 Warnings`. The `Output` window at the bottom shows the message: `Log file for this session is located at: C:\Documents and Settings\Admin.MICROSOFT-7D0472\Local Se...`

Lab\_1 - PSoC Creator 2.1 [D:\PSoC\_3\Lab\_1\Lab\_1.cydsn\Lab\_1.cydw] 37% Debug

File Edit View Debug Project Build Tools Window Help

Workspace Explorer (1 project)

- Workspace 'Lab\_1' (1 Projects)
  - Project 'Lab\_1' [CY8C3866]
    - TopDesign.cysch
    - Lab\_1.cydw
    - Header Files
      - device.h
    - Source Files
      - main.c



Alias	Name	Port	Pin	Lock
	\LCD_Char:LCDPort[6:0]\			
	P0[6:0]	IDAC:HC		
	P0[7:1]	IDAC:HC		
	P2[6:0]			
	P2[7:1]			
	P3[6:0]	OpAmp:c		
	P3[7:1]	OpAmp:c		
	P4[6:0]			
	P4[7:1]			
	P5[6:0]			

LCD\_Char\_LCDPort\_6 - Digital  
LCD\_Char\_LCDPort\_5 - Digital  
LCD\_Char\_LCDPort\_4 - Digital

Notice List

0 Errors 0 Warnings

De... File Error L

Pins Analog Clocks Interrupts DMA System Directives Flash Security

Output

Show output from: All

Log file for this session is located at: C:\Documents and Settings\Admin.MICROSOFT-7D0472\Local Se





# Build – Debug - Program

Lab\_1 - PSoC Creator 2.1 [D:\PSoC\_3\Lab\_1\Lab\_1.cydsn\main.c]

File Edit View Debug Project Build Tools Window Help

Debug

Workspace Explorer

- Workspace 'Lab\_1' (1 Projects)
  - \*Project 'Lab\_1' [CY8C3]
    - TopDesign.cysch
    - Lab\_1.cydwr
    - Header Files
      - device.h
    - Source Files
      - main.c
    - Generated\_Source
      - PSoC3
        - cy\_boot
          - CyBootAsmk
          - CyDmac.c
          - CyDmac.h
          - CyFlash.c
          - CyFlash.h
          - CyLib.c
          - CyLib.h
          - cymem.a51
          - cypins.h

Source Components Datasheets Results

```
1  /* -----  
2  *  
3  * Copyright YOUR COMPANY, THE YEAR  
4  * All Rights Reserved  
5  * UNPUBLISHED, LICENSED SOFTWARE.  
6  *  
7  * CONFIDENTIAL AND PROPRIETARY INFORMATION  
8  * WHICH IS THE PROPERTY OF your company.  
9  *  
10 * -----  
11 */  
12 #include <device.h>  
13  
14 void main()  
15 {  
16     /* Place your initialization/startup code here (e.g. MyInst_Start()) */  
17  
18     /* CyGlobalIntEnable; */ /* Uncomment this line to enable global interrupts. */  
19     for(;;)  
20     {  
21         /* Place your application code here. */  
22     }  
23 }  
24  
25 /* [] END OF FILE */  
26
```

Notice List

0 Errors 0 Warnings

De...	File	Error L
-------	------	---------

Output

Show output from: All

```
SRAM used: 93 of 8192 bytes (1.1%).  
----- Build Succeeded: 02/14/2013 19:39:40 -----
```





# LCD Custom Character Set

Lab\_1 - PSoC Creator 2.1 [D:\PSoc\_3\Lab\_1\Lab\_1.cydsn\TopDesign\TopDesign.cysch]

File Edit View Debug Project Build Tools Window Help

Microsoft Sans Serif 10 B I U

Workspace Explorer

Project 'Lab\_1' [CY8C3866AX-040]

Source Components Datasheets Results

Configure 'CharLCD'

Name: LCD\_Char

General Built-in

Parameters

LCD Custom Character Set

- None
- Vertical Bargraph
- Horizontal Bargraph
- User Defined

Include ASCII to Number Conversion Routines

Custom Character Editor

Custom 7

Datasheet OK Apply Cancel

Notice List

0 Errors 0 Warnings

Output

Show output from: All

```
Verify Checksum...
Device 'PSoc 3 CY8C3866AX*-040' was successfully programmed at 02/14/201
```

Component Catalog (174 components)

- Character LCD [v1.70]

Component Preview

Inst N

Character LCD

Datasheet

Ready {X=442,Y=450} 0 Errors 0 Warnings 0 Notes



# Open Project/Workspace

The screenshot shows the PSoC Creator 2.1 application window. The 'File' menu is open, and the 'Open' option is selected. A sub-menu is visible, showing 'Project/Workspace', 'File... Ctrl+O', and 'Example Project...'. The main interface includes a 'Recent Projects' list, a 'Getting Started' section, and a 'Tips + Tricks' section. A 'Notice List' window is open in the bottom left, showing 0 Errors and 0 Warnings. The output window at the bottom shows a log file path: 'C:\Documents and Settings\Admin.MICROSOFT-7D0472\Local Se...'. The status bar at the bottom indicates 'Ready' and '0 Errors 0 Warnings 0 Notes'.





# Lab\_1 Character LCD

CharLCD\_CustomFont01 - PSoC Creator 2.1 [F:\...\CharLCD\_CustomFont01.cydsn\TopDesign\TopDesign.cysch]

File Edit View Debug Project Build Tools Window Help

Microsoft Sans Serif 10 B I U

Workspace Explorer (1 project)

Project 'CharLCD\_CustomFont01'

- TopDesign.cysch
- CharLCD\_CustomFont01
  - Header Files
    - device.h
  - Source Files
    - main.c
  - Generated\_Source
    - PSoC3
      - cy\_boot
        - CyBootAsmk
        - CyDmac.c
        - CyDmac.h
        - CyFlash.c
        - CyFlash.h
        - CyLib.c
        - CyLib.h
        - cymem.a51
        - cypins.h

Source Components Datasheets Results

Start Page TopDesign.cysch CharLCD\_Cust...Font01.cydwr main.c

LCD  
Character LCD

Component Catalog (174 co...)

Cypress Component Catalog

- Analog
  - ADC
  - Amplifiers
  - Analog MUX
  - Comparator [v1.90]
  - DAC
  - Manual Routing
  - Mixer [v1.91]
  - Sample/Track and Hold
  - VRef [v1.60]
- CapSense
- Communications
- Digital
- Display
  - Character LCD [v1.70]
  - Graphic LCD 8-bit Paralle
  - Graphic LCD 16-bit Paralle
  - Graphic LCD Controller I
  - Graphic LCD Parallel Int
  - Resistive Touch [v1.10]

Notice List

0 Errors 0 Warnings

Output

Show output from: All

Log file for this session is located at: C:\Documents and Settings\Admin...

Page 1

Ready 0 Errors 0 Warnings 0 Notes



# Lab\_1 Character LCD

CharLCD\_CustomFont01 - PSoC Creator 2.1 [F:\LCD\_Font\_1\CharLCD\_CustomFont01\CharLCD\_CustomFont01.cydsn\main.c]

File Edit View Debug Project Build Tools Window Help

Debug

Workspace Explorer (1 project)

- Workspace 'CharLCD\_CustomFont01'
  - Project 'CharLCD\_CustomFont01'
    - TopDesign.cysch
    - CharLCD\_CustomFont01
      - Header Files
      - device.h
      - Source Files
      - main.c
      - Generated\_Source
      - PSoC3
        - cy\_boot
          - CyBootAsmk
          - CyDmac.c
          - CyDmac.h
          - CyFlash.c
          - CyFlash.h
          - CyLib.c
          - CyLib.h
          - cymem.a51
          - cypins.h

Source Components Datasheets Results

```
1 /*****  
2 * File Name: main.c  
3 *  
4 * Version: 2.0  
5 *  
6 * Description:  
7 * The example project displays " CYPRESS" in a custom font on 2X16 LCD  
8 * available with CY8CKIT-001.  
9 *  
10 *****/  
11 * Copyright 2012, Cypress Semiconductor Corporation. All rights reserved.  
12 * This software is owned by Cypress Semiconductor Corporation and is protected  
13 * by and subject to worldwide patent and copyright laws and treaties.  
14 * Therefore, you may use this software only as provided in the license agreement  
15 * accompanying the software package from which you obtained this software.  
16 * CYPRESS AND ITS SUPPLIERS MAKE NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED,  
17 * WITH REGARD TO THIS SOFTWARE, INCLUDING, BUT NOT LIMITED TO, NONINFRINGEMENT,  
18 * IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.  
19 *****/  
20  
21 #include <device.h>  
22  
23 extern uint8 const CYCODE LCD_customFonts[];  
24  
25 /*****  
26 * Function Name: main  
27 *****/
```

Output

Show output from: All

Log file for this session is located at: C:\Documents and Settings\Admin.MICROSOFT-7D0472\Local Se

Notice List

0 Errors 0 Warnings

De... File Error L



# Lab\_1 Character LCD

CharLCD\_CustomFont01 - PSoC Creator 2.1 [F:\LCD\_Font\_1\CharLCD\_CustomFont01\CharLCD\_CustomFont01.cydsn\main.c]

File Edit View Debug Project Build Tools Window Help

Debug

Workspace Explorer (1 project)

- Workspace 'CharLCD\_CustomFont01'
  - Project 'CharLCD\_CustomFont01'
    - TopDesign.cysch
    - CharLCD\_CustomFont01
      - Header Files
        - device.h
      - Source Files
        - main.c
      - Generated\_Source
        - PSoC3
          - cy\_boot
            - CyBootAsmk
            - CyDmac.c
            - CyDmac.h
            - CyFlash.c
            - CyFlash.h
            - CyLib.c
            - CyLib.h
            - cymem.a51
            - cypins.h

Source Components Datasheets Results

```
25 /*****  
26 * Function Name: main  
27 *****/  
28 *  
29 * Summary:  
30 * The main program does the following  
31 * 1. Initialiaes the LCD.  
32 * 2. Load the custom fonts.  
33 * 3. Puts "CYPRESS" in custom available font on the row 0 of the LCD.  
34 * 4. Prints " Perform" in normal font on the row 1 of the LCD.  
35 *  
36 * Parameters:  
37 * None.  
38 *  
39 * Return:  
40 * None.  
41 *  
42 *****/  
43 void main()  
44 {  
45     uint8 pos = 1u;  
46     uint8 row = 0u;  
47  
48     LCD_Start();  
49     LCD_LoadCustomFonts(LCD_customFonts);  
50 }
```

Notice List

0 Errors 0 Warnings

De... File Error L

Output

Show output from: All

Log file for this session is located at: C:\Documents and Settings\Admin.MICROSOFT-7D0472\Local Se





# Lab\_1 Character LCD

CharLCD\_CustomFont01 - PSoC Creator 2.1 [F:\LCD\_Font\_1\CharLCD\_CustomFont01\CharLCD\_CustomFont01.cydsn\main.c]

File Edit View Debug Project Build Tools Window Help

Debug

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            - CyFlash.h
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            - CyLib.h
            - cymem.a51
            - cypins.h

Source Components Datasheets Results

```
50
51 LCD_Position(row, pos);
52 LCD_PutChar(LCD_CUSTOM_0);
53 pos += 1u;
54
55 LCD_Position(row, pos);
56 LCD_PutChar(LCD_CUSTOM_1);
57 pos += 1u;
58
59 LCD_Position(row, pos);
60 LCD_PutChar(LCD_CUSTOM_2);
61 pos += 1u;
62
63 LCD_Position(row, pos);
64 LCD_PutChar(LCD_CUSTOM_3);
65 pos += 1u;
66
67 LCD_Position(row, pos);
68 LCD_PutChar(LCD_CUSTOM_4);
69 pos += 1u;
70
71 LCD_Position(row, pos);
72 LCD_PutChar(LCD_CUSTOM_5);
73 pos += 1u;
74
75 LCD_Position(row, pos);
76 LCD_PutChar(LCD_CUSTOM_6);
77 pos += 1u;
```

Output

Show output from: All

Log file for this session is located at: C:\Documents and Settings\Admin.MICROSOFT-7D0472\Local Se

Notice List

0 Errors 0 Warnings

De...	File	Error L
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Ln 76 Col 37 INS 0 Errors 0 Warnings 0 Notes

CharLCD\_CustomFont01 - PSoC Creator 2.1 [F:\LCD\_Font\_1\CharLCD\_CustomFont01\CharLCD\_CustomFont01.cydsn\main.c]

File Edit View Debug Project Build Tools Window Help

Debug

Workspace Explorer (1 project)

Project 'CharLCD\_CustomFont01'

- TopDesign.cysch
- CharLCD\_CustomFont01
  - Header Files
    - device.h
  - Source Files
    - main.c
  - Generated\_Source
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        - CyDmac.h
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        - CyFlash.h
        - CyLib.c
        - CyLib.h
        - cymem.a51
        - cypins.h

```
66
67     LCD_Position(row, pos);
68     LCD_PutChar(LCD_CUSTOM_4);
69     pos += 1u;
70
71     LCD_Position(row, pos);
72     LCD_PutChar(LCD_CUSTOM_5);
73     pos += 1u;
74
75     LCD_Position(row, pos);
76     LCD_PutChar(LCD_CUSTOM_6);
77     pos += 1u;
78
79     LCD_Position(row, pos);
80     LCD_PutChar(LCD_CUSTOM_7);
81     pos += 1u;
82
83     //extern uint8 const CYCODE LCD_Char_customFonts[0x00,0x0E];
84     CyDelay(200u);
85     LCD_Position(1u, 1u);
86     LCD_PrintString("LAb1 02.10.2013");
87
88     for (;;)
89     {
90     }
91
92
93 /* [] END OF FILE */
```

Notice List

0 Errors 0 Warnings

De...	File	Error L
-------	------	---------

Output

Show output from: All

Log file for this session is located at: C:\Documents and Settings\Admin.MICROSOFT-7D0472\Local Se

Ln 85 Col 24 INS 0 Errors 0 Warnings 0 Notes

Ready

Новости ... Do\_Prese... Microsoft ... CharLCD... EN 7:47



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**Technical Support**

**Product Family**

Product Family	Descriptive Name	Date	Downloads
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PSoC Mixed-Signal Array	AN2260 - Standard - Rapid NiCd/NiMH Battery Charger and DC Brushed Motor Controller for Autonomous Appliances	Apr 15, 2005	AN2260.PDF AN2260.ZIP
PSoC Mixed-Signal Array	AN2026b - Support - In-System Serial Programming Protocol CY8C24794 and CY8C29xxx	Apr 8, 2005	AN2026B.PDF
PSoC Mixed-Signal Array	AN2266 - Support - 16-Bit PWM/PWM-DACs using One Digital PSoC(TM) Block	Apr 8, 2005	AN2266.PDF AN2266.ZIP
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(лекція 1, кінець)  
Благітко Б.Я.  
2019 р.

