

Мікропроцесорна техніка

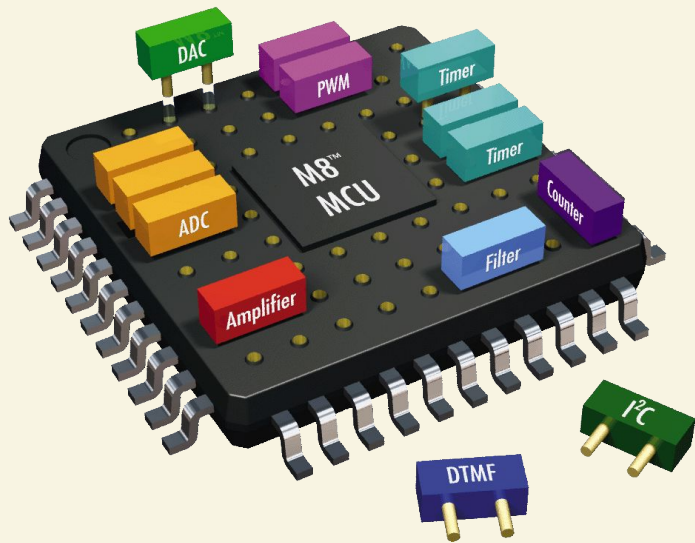
(лекція 1)
Благітко Б.Я.
2019 р.

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

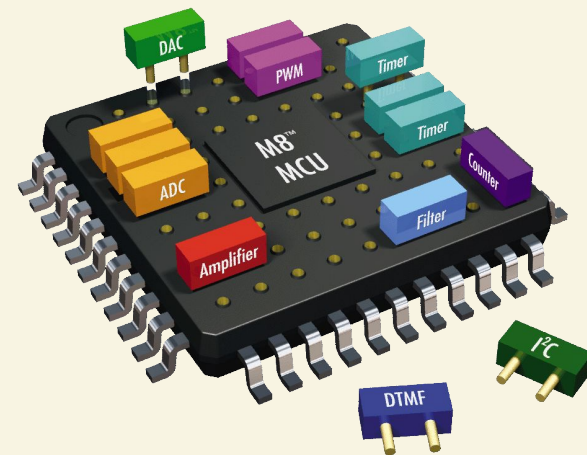
DTMF генератор і детектор

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)

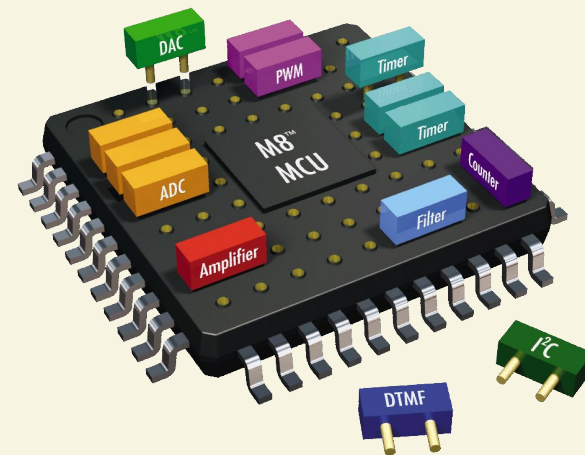
Генератори цифрових контрольних сум (CRC)

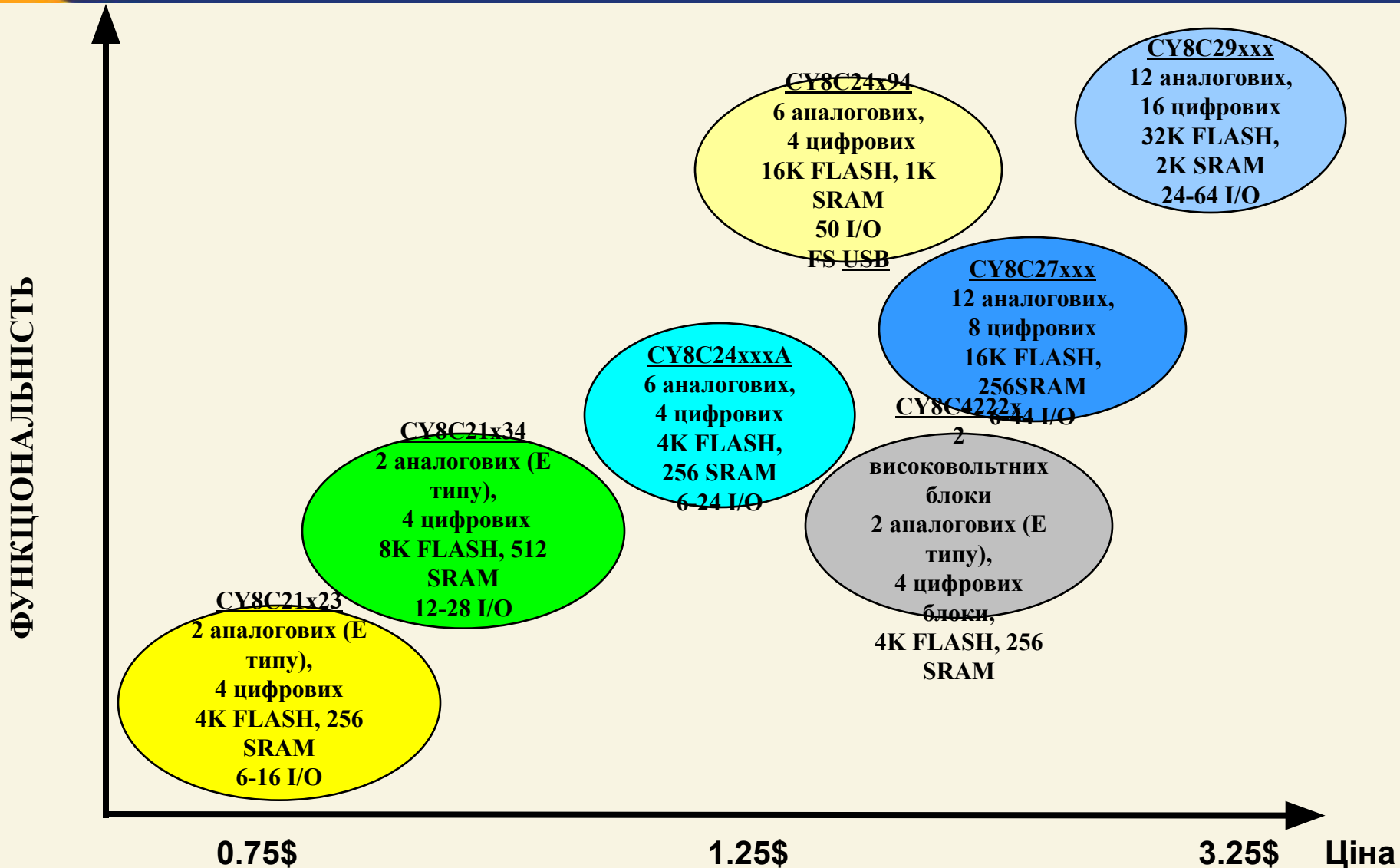
I²C майстер/підлеглий

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

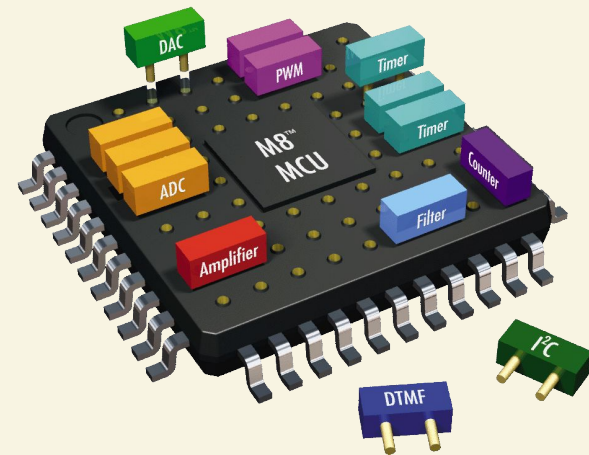
Номер елемента,

який не містить Pb

= CY8C27443-24PXI

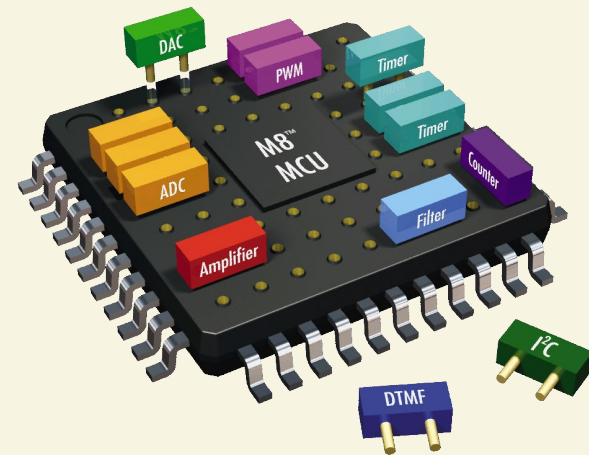


- Інтегроване середовище розробника PSoC Creator
- Оцінювальні плати
- Програматори
- Апаратні емулятори



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

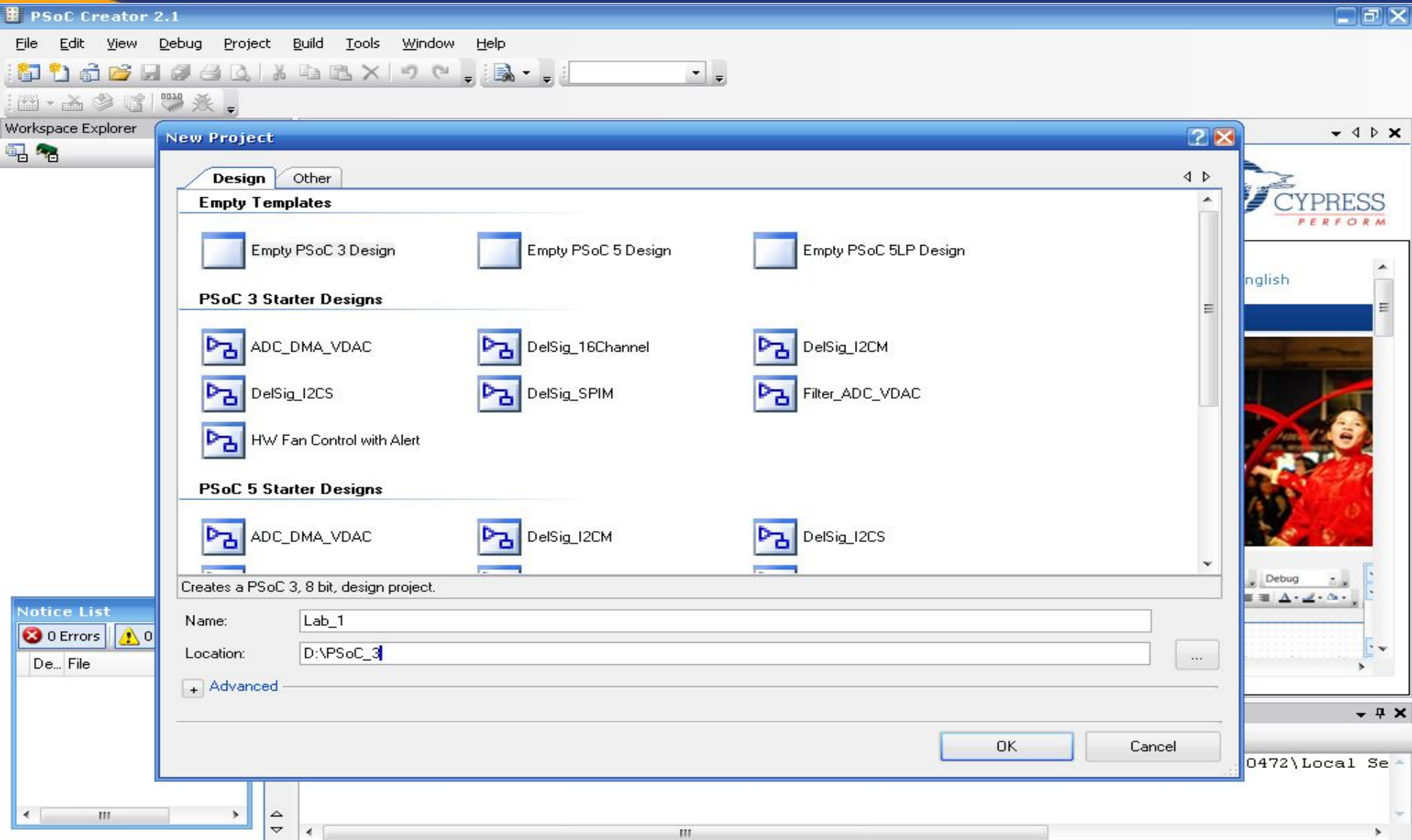
De... File Error L

Output

Show output from: All

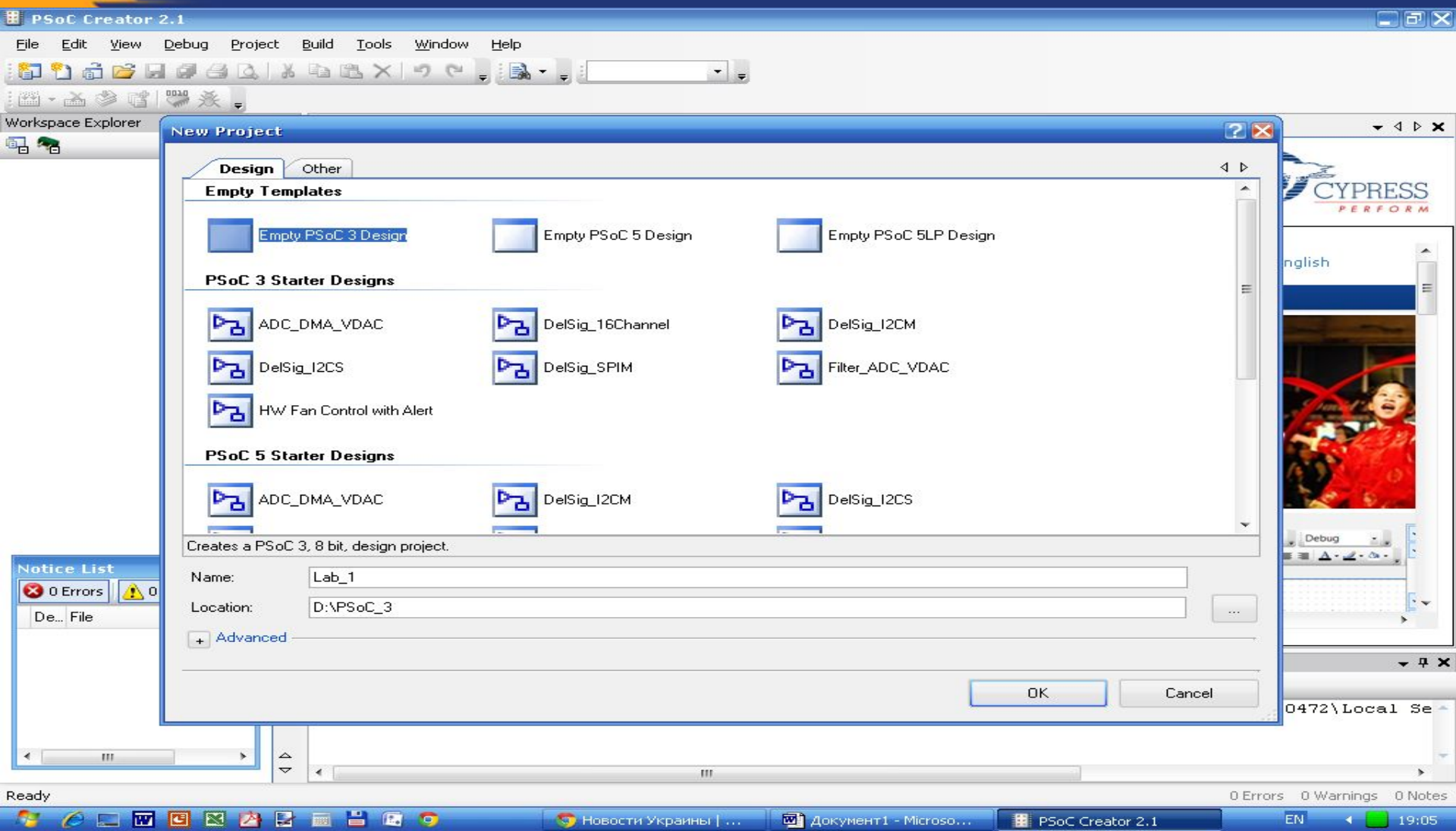
Log file for this session is located at: C:\Documents and Settings\Admin.MICROSOFT-7D0472\Local Se

File – New - Projekt



The screenshot shows the PSoC Creator 2.1 application window. The 'File' menu is open, and the 'New' option is selected, which has opened the 'New Project' dialog box. The dialog box has two tabs: 'Design' (selected) and 'Other'. Under the 'Design' tab, there are three sections: 'Empty Templates', 'PSoC 3 Starter Designs', and 'PSoC 5 Starter Designs'. The 'Empty Templates' section contains three options: 'Empty PSoC 3 Design', 'Empty PSoC 5 Design', and 'Empty PSoC 5LP Design'. The 'PSoC 3 Starter Designs' section contains six options: 'ADC_DMA_VDAC', 'DelSig_16Channel', 'DelSig_I2CM', 'DelSig_I2CS', 'DelSig_SPIM', and 'Filter_ADC_VDAC'. The 'PSoC 5 Starter Designs' section contains three options: 'ADC_DMA_VDAC', 'DelSig_I2CM', and 'DelSig_I2CS'. Below these sections, there is a description: 'Creates a PSoC 3, 8 bit, design project.' There are two input fields: 'Name:' with the text 'Lab_1' and 'Location:' with the text 'D:\PSoC_3'. There is also an 'Advanced' button with a plus sign. At the bottom right of the dialog box are 'OK' and 'Cancel' buttons. In the background, the main application window is visible, showing the 'Workspace Explorer' on the left and a 'Notice List' at the bottom left. The 'Notice List' shows '0 Errors' and '0 Warnings'. The taskbar at the bottom shows the Windows Start button, several application icons, and the system tray with the date and time '19:02'.

Empty PSoC 3/5 Design

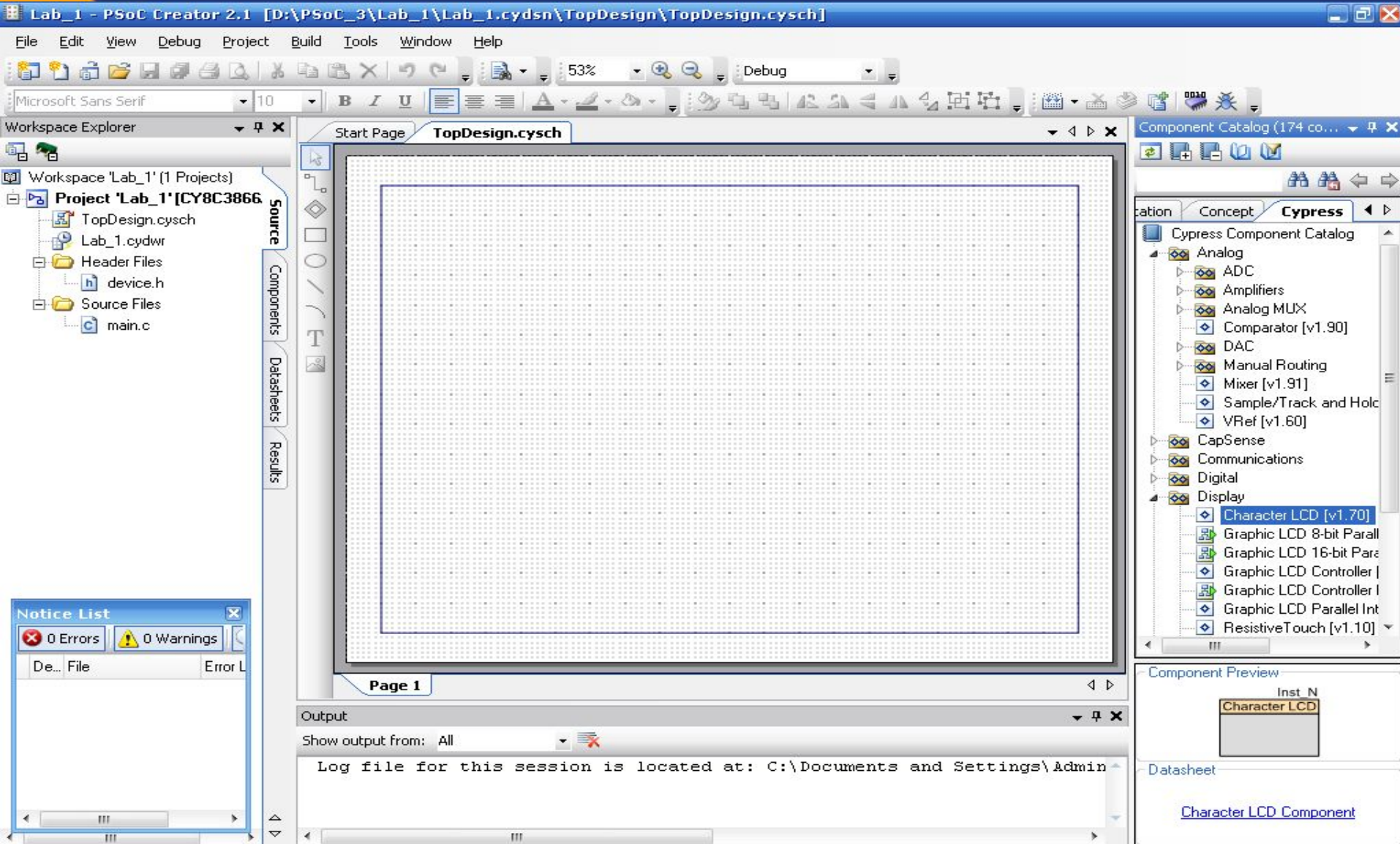


The screenshot displays the PSoC Creator 2.1 application interface. The main window is titled "New Project" and is divided into several sections:

- Design** tab: Contains "Empty Templates" (Empty PSoC 3 Design, Empty PSoC 5 Design, Empty PSoC 5LP Design), "PSoC 3 Starter Designs" (ADC_DMA_VDAC, DelSig_I2CS, HW Fan Control with Alert, DelSig_16Channel, DelSig_SPIM, DelSig_I2CM, Filter_ADC_VDAC), and "PSoC 5 Starter Designs" (ADC_DMA_VDAC, DelSig_I2CM, DelSig_I2CS).
- Other** tab: (Not visible).
- Project Information:** A text box states "Creates a PSoC 3, 8 bit, design project." Below this are input fields for "Name:" (containing "Lab_1") and "Location:" (containing "D:\PSoC_3").
- Buttons:** "OK" and "Cancel" buttons are located at the bottom right.

The background shows the PSoC Creator 2.1 main menu (File, Edit, View, Debug, Project, Build, Tools, Window, Help) and a workspace explorer. A "Notice List" window in the bottom left corner shows "0 Errors" and "0 Warnings". The Windows taskbar at the bottom includes the Start button, system tray, and active windows like "Новости Украины", "Документ1 - Micro...", and "PSoC Creator 2.1". The system clock shows "19:05".

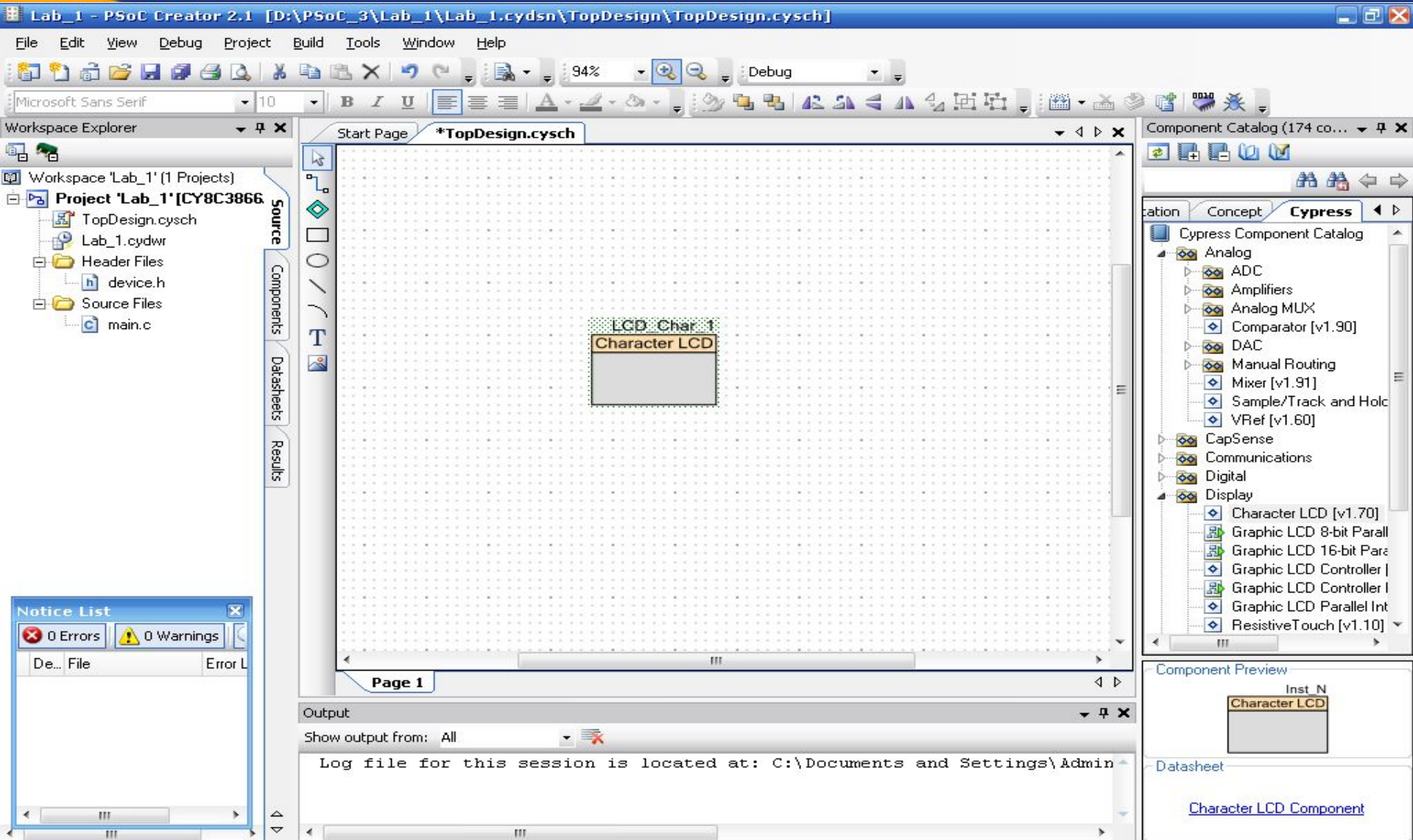
Custom Window



The screenshot displays the PSoC Creator 2.1 software interface. The main workspace is a grid-based canvas for designing custom windows, currently showing a large empty rectangular area. The interface includes several key components:

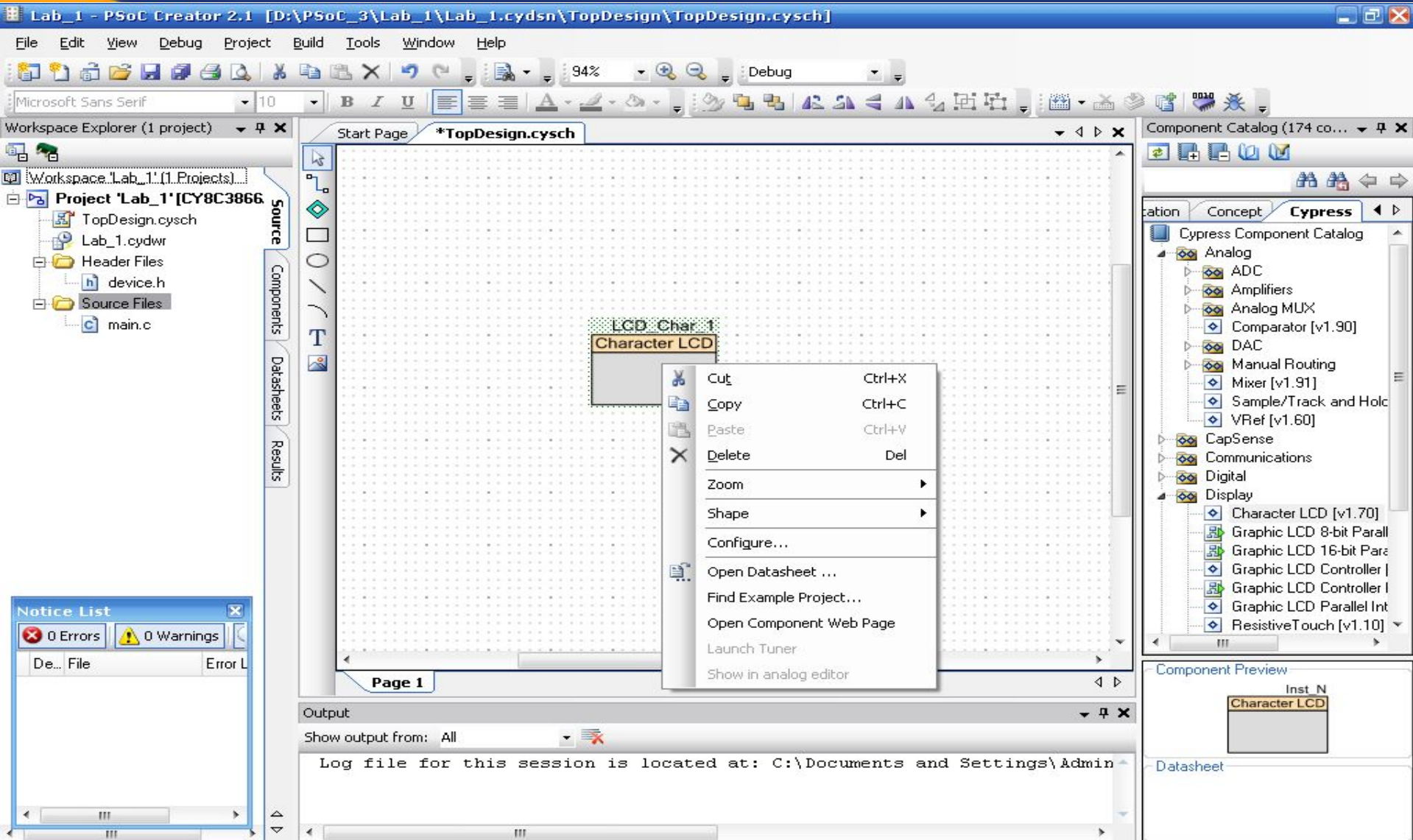
- Workspace Explorer:** Located on the left, it shows the project structure for 'Project 'Lab_1' [CY8C3866]', including files like 'TopDesign.cysch', 'Lab_1.cydwr', 'device.h', and 'main.c'.
- Component Catalog:** On the right, it lists various components under the 'Cypress' category, such as 'Analog', 'Digital', and 'Display'. The 'Character LCD [v1.70]' component is highlighted.
- Component Preview:** Below the catalog, it shows a preview of the selected 'Character LCD' component.
- Notice List:** A small window in the bottom-left corner shows '0 Errors' and '0 Warnings'.
- Output Window:** At the bottom, it displays a log message: 'Log file for this session is located at: C:\Documents and Settings\Admin...'

Character LCD



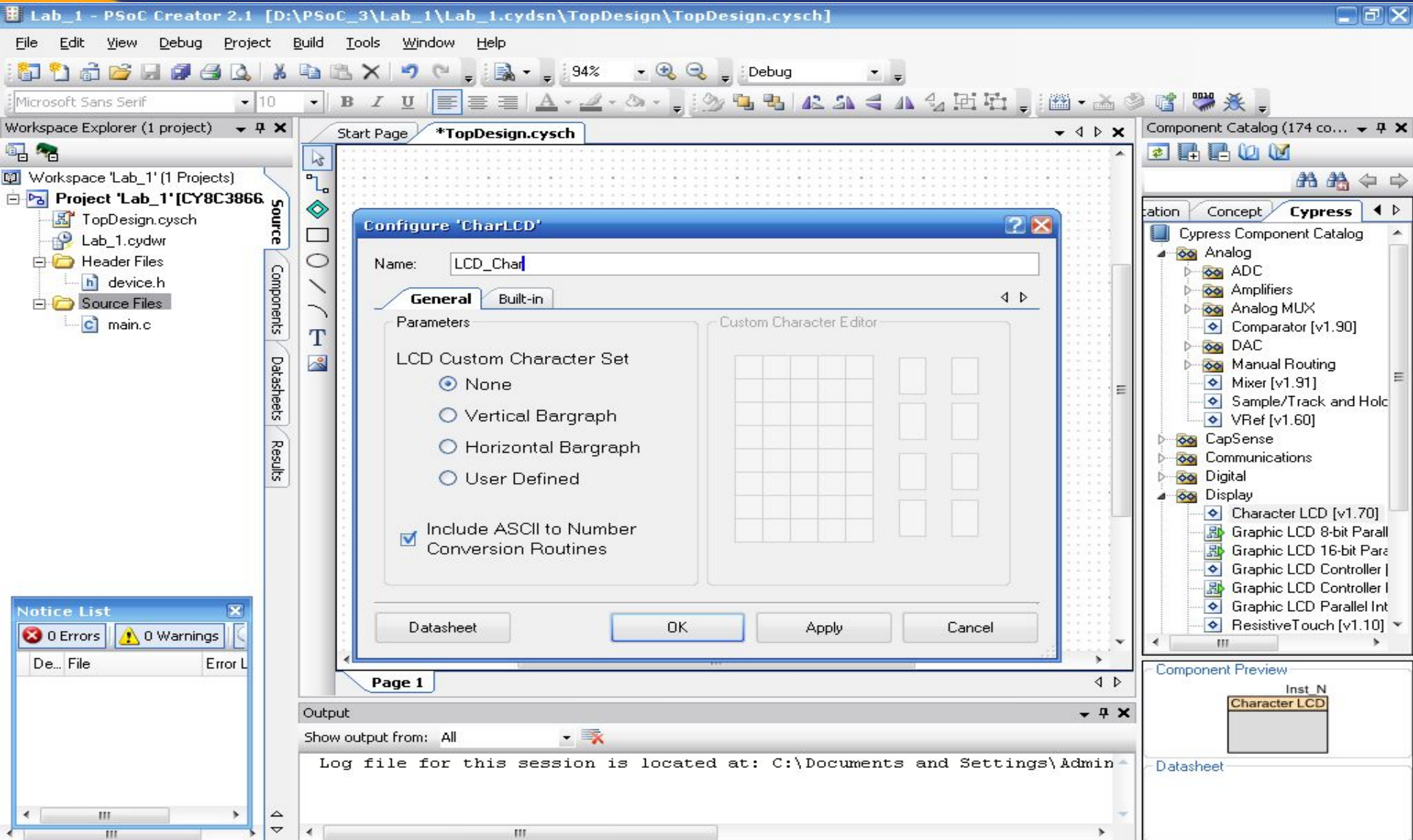
The screenshot displays the PSoC Creator 2.1 software interface. The main workspace shows a design page with a grid background. A component labeled "LCD Char 1" is being placed on the page, with a smaller "Character LCD" component visible below it. The Component Catalog on the right lists various components, including "Character LCD [v1.70]". 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

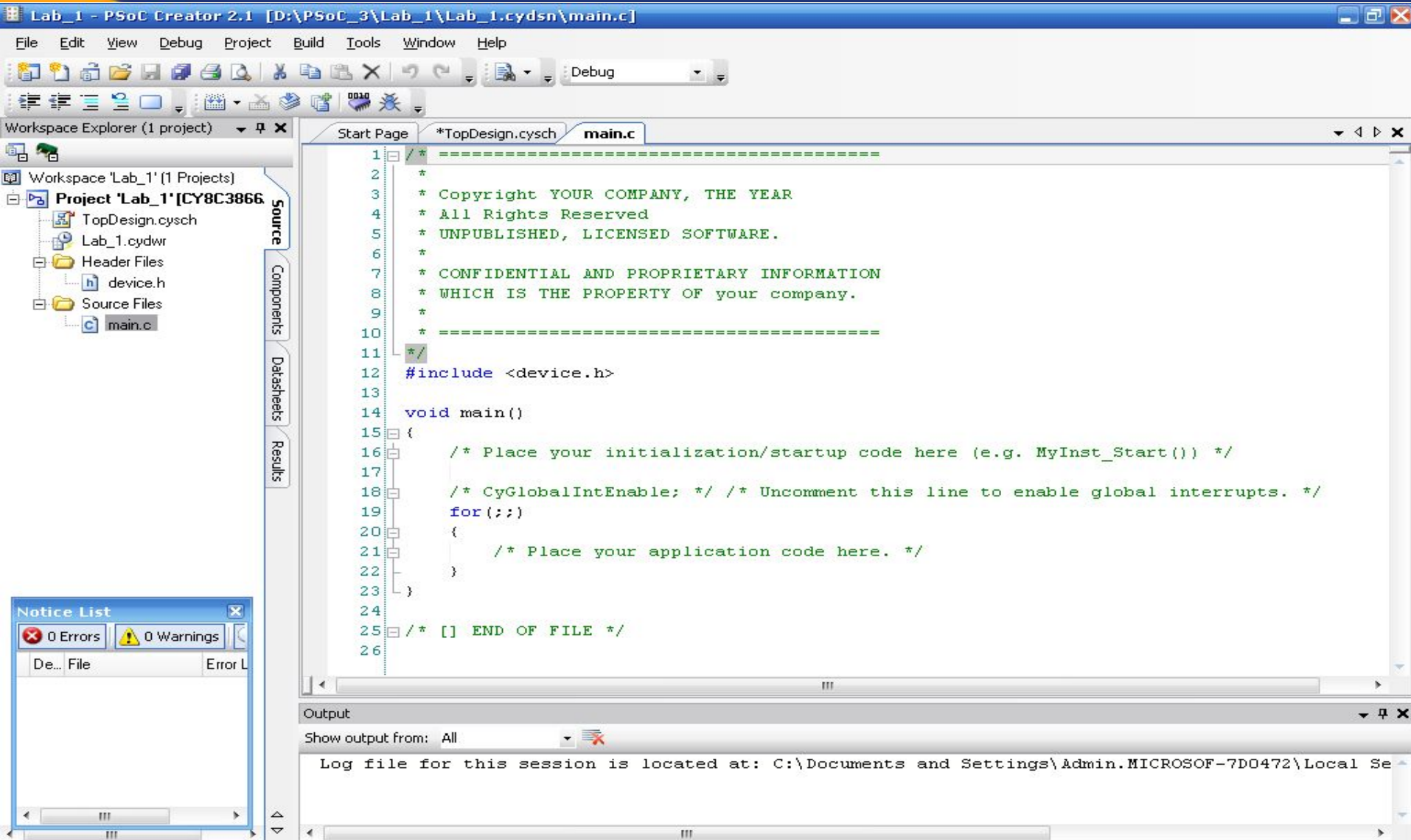


The screenshot displays the PSoC Creator 2.1 software interface. The main workspace shows a schematic design with a grid. A component labeled "Character LCD" is being placed on the grid. A context menu is open over the component, listing actions such as Cut, Copy, Paste, Delete, Zoom, Shape, Configure..., 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 message: "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, which is used to configure the LCD component. The dialog has a 'Name' field containing 'LCD_Char'. It features 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 named 'Project Lab_1' and a component catalog on the right side. A 'Notice List' window is open in the bottom-left corner, showing 0 errors and 0 warnings. The output window at the bottom shows a log message: 'Log file for this session is located at: C:\Documents and Settings\Admin...'. The status bar at the bottom indicates 'Ready' and shows the coordinates {X=295,Y=131}.



The screenshot displays the PSoC Creator 2.1 IDE interface. The main window shows the source code for `main.c` in the `*TopDesign.cysch` project. The code includes a copyright notice, an include directive for `device.h`, and a `main()` function with several comments and a `for` loop placeholder.

```
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
```

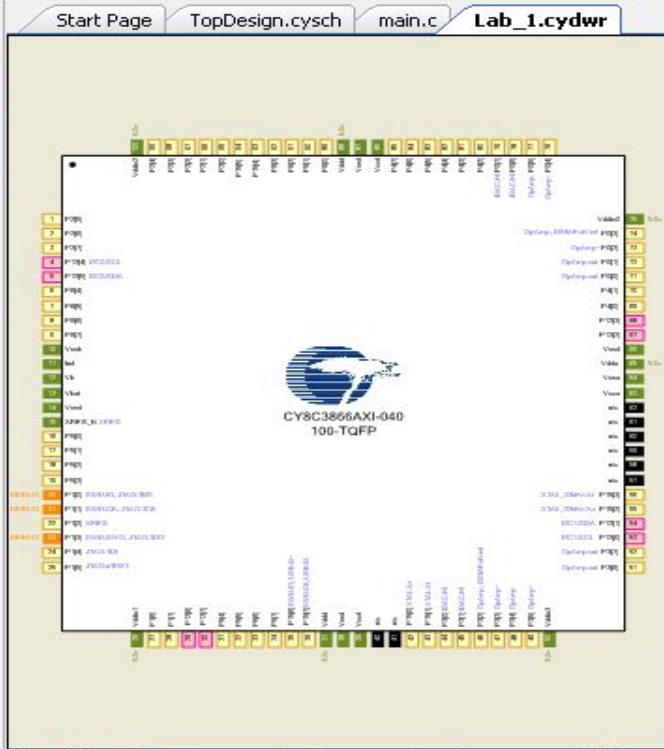
A `Notice List` window is open in the bottom-left corner, showing `0 Errors` and `0 Warnings`. The `Output` window at the bottom shows the message: `Log file for this session is located at: C:\Documents and Settings\Admin.MICROSOFT-7D0472\Local Se...`

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

The screenshot shows the PSoC Creator 2.1 IDE interface. The main window displays the source code for `main.c`. The code includes a copyright notice and a `main()` function. The `main()` function contains initialization code and a `for` loop for application code. The `Output` window at the bottom shows the build results, indicating that the build succeeded and SRAM usage is 93 of 8192 bytes (1.1%).

```
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
```

Output window content:

```
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
```



Open Project/Workspace

The screenshot shows the PSoC Creator 2.1 application window. The 'File' menu is open, and the 'Open' submenu is expanded, showing options: 'Project/Workspace', 'File... Ctrl+O', and 'Example Project...'. The main workspace contains a 'Recent Projects' list with items like 'CharLCD_CustomFont01.c...', 'Lab_1.cywrk', and 'HelloWorld_Blinky01.cywrk'. There are also sections for 'Getting Started' and 'Examples and Kits'. 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 message: 'Log file for this session is located at: C:\Documents and Settings\Admin.MICROSOFT-7D0472\Local Se...'. The status bar at the bottom right shows '0 Errors 0 Warnings 0 Notes'.



Lab_1 Character LCD

The screenshot shows the PSoC Creator 2.1 IDE interface. The main workspace displays a grid with a component labeled "LCD" and "Character LCD" placed on it. The Component Catalog on the right shows the "Character LCD [v1.70]" component selected under the "Display" category. The Workspace Explorer on the left shows the project structure, including "Header Files", "Source Files", and "Generated_Source". The Output window at the bottom displays the message: "Log file for this session is located at: C:\Documents and Settings\Admin...". A Notice List window in the bottom-left corner shows "0 Errors" and "0 Warnings".



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)

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)

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 }
```

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)

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

```
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
-------	------	---------

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
 - PSoC3
 - cy_boot
 - CyBootAsmk
 - CyDmac.c
 - CyDmac.h
 - CyFlash.c
 - 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

На сайті фірми Cypress знаходиться більше 200 Application Notes і Reference Designs, які ілюструють області застосування мікроконтролерів PSoC.

Design Support - Microsoft Internet Explorer

Address: http://www.cypress.com/portal/server.pt?space=CommunityPage&control=SetCommunity&Communi

Design Resources

Select one of the following materials to help you design-in Cypress products: Application Notes, Datasheets, Developer Kits, Errata Updates, Evaluation Boards, Models, Reference Designs, Software & Drivers and Technical Articles.

Select Product Group: -- All Product Groups --

Select Product Family: -- All Product Families --
 Application Specific Clocks
 Async SRAMs
 Automotive Products
 Backplane Interface & Clock Mgmt
 Bluetooth Solutions

Apply Filter

Application Notes	Datasheets	Developer Kits	Errata Update	Evaluation Boards
Models	More Resources	Reference Designs	Software and Drivers	Technical Articles

Technical Support

Product Family | **Descriptive Name** | **Date** | **Downloads**

Product Family	Descriptive Name	Date	Downloads
PSoC Mixed-Signal Array	AN2267a - Standard - Single Cell Li-Ion Battery Charger using CY8C21xxx	Apr 19, 2005	AN2267A.PDF AN2267A.ZIP
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
PSoC Mixed-Signal Array	AN2279 - Support - Dynamic I2C Addressing Implemented with I2C Hardware User Modules	Apr 8, 2005	AN2279.PDF AN2279.ZIP
PSoC Mixed-Signal Array	AN2267 - Standard - Single Cell Li-Ion Battery Charger	Apr 1, 2005	AN2267.PDF AN2267.ZIP
PSoC Mixed-Signal Array	AN2222a - Support - Flex-Pod Soldering Guide	Mar 31, 2005	AN2222A.PDF
PSoC Mixed-Signal Array	AN2233a - Support - Capacitive Switch Scan	Mar 31, 2005	AN2233A.PDF
PSoC Mixed-Signal Array	AN2276 - Support - Binary Weighted Single-Pole IIR Low-Pass Filters	Mar 29, 2005	AN2276.PDF AN2276.ZIP
PSoC Mixed-Signal Array	AN2277 - Support - Capacitive Front Panel Display Demonstration	Mar 29, 2005	AN2277.PDF AN2277.ZIP

Found 201 items 1 - 10 | 11 - 20 | 21 - 30 | 31 - 40 | 41 - 50 | 51 - 60 | 61 - 70 | 71 - 80 | 81 - 90 | 91 - 100 | see 1 - 100 | next 100

Contact Us | Privacy | Terms & Conditions | How to Buy | 日本語 | 中文

© Copyright 1995-2005. Cypress Semiconductor Corporation. All rights reserved.

Мікропроцесорна техніка

(лекція 1, кінець)
Благітко Б.Я.
2019 р.

