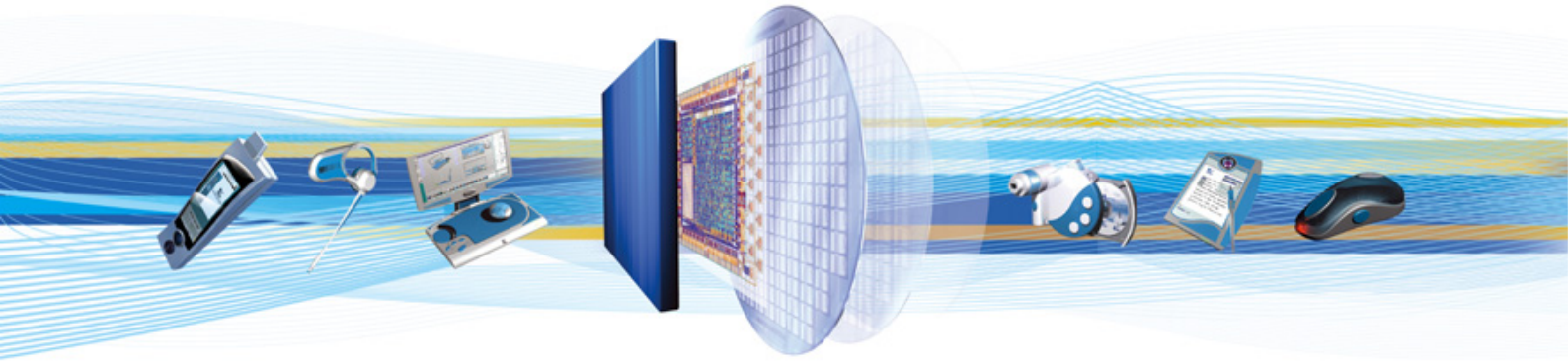
CSR Synergy Framework 3.1.0

CSR APP – Application Framework

API Description

August 2011



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1 Introduction

CSR_APP is a framework intended for managing multi profile and multi technologies in a common menu system. The framework is based on CSR_UI and this guide assumes the user have read and understood the interface of CSR_UI prior to reading this document. The application communicates with CSR_APP using a message-based interface. Using a small set of signals it is possible for the application to register and backlogging info into a consistent higher layer menu system, which handles the registration of all applications running at the same time in the system.

2 Principles

This section describes the basic principles of CSR_APP. This section provides the foundation necessary to understand how to interact with CSR_APP from an application. It first describes the overall design idea. After this the registration process are described and finally the concept of backlogging are explained,

2.1 Fundamental design

The CSR_APP defines the upper entry to a menu system. In terms of CSR_UI the CSR_APP is in charge of the "Idle screen" and up to the two underlying menu layers entries.

In Figure 1, the fundamental design is illustrated.

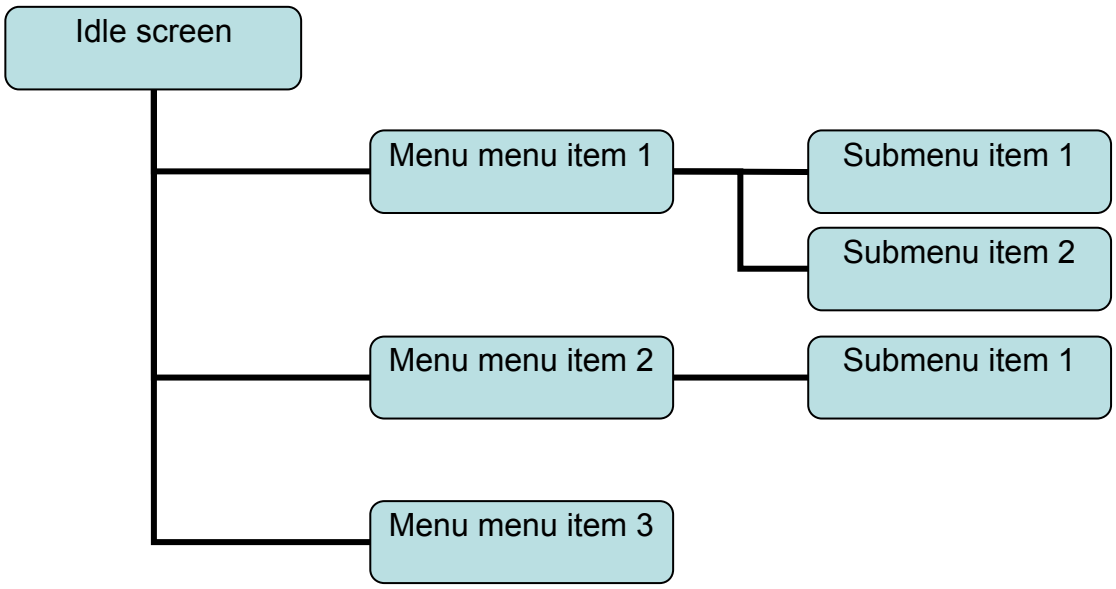

Figure 1: Fundamental design

The CSR_APP handles as said and shown up to two layers of menu items. The naming of each menu item are controlled by the application during the registration described later. If two applications registers with the same name for a main menu item they will automatically share the same main menu entry, they will just have different submenu items (as illustrated with "Main menu item 1"). It is also possible to register a main menu item without a submenu (as illustrated with "Main menu item 3"), but then it is illegal for two applications to share the same main menu entry.

When the user selects either a submenu item or a main menu item without a submenu, the registrant of that item is notified and is then allowed to take control over the UI.

2.2 Registration

The registration process is where an application applies for a menu entry in the application framework. The CSR_APP will assign a main menu item and a submenu item (if desired) dependent on what the application specifies and when a user selects that item CSR_APP will hand over the control of the user interface to the application.

Illustrated in Figure 2, is an example of a registration sequence and a later user interaction resulting in a "CSR_APP_TAKE_CONTROL_IND".

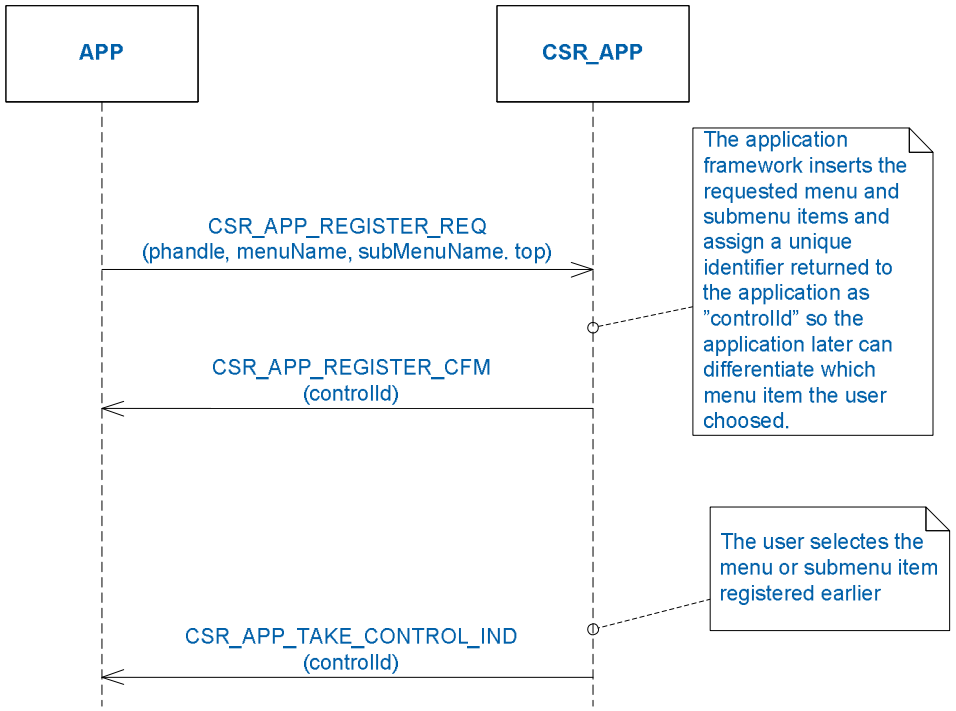

Figure 2: Registration sequence

2.3 Backlogging

When implementing demo applications it is inevitably necessary to printout strings on the UI to inform the user what has happened in the past in a given profile. The application framework has a built in backlog of events that have happened in the past. Illustrated in Figure 3, is an example of an application sending a backlog string to the application framework.

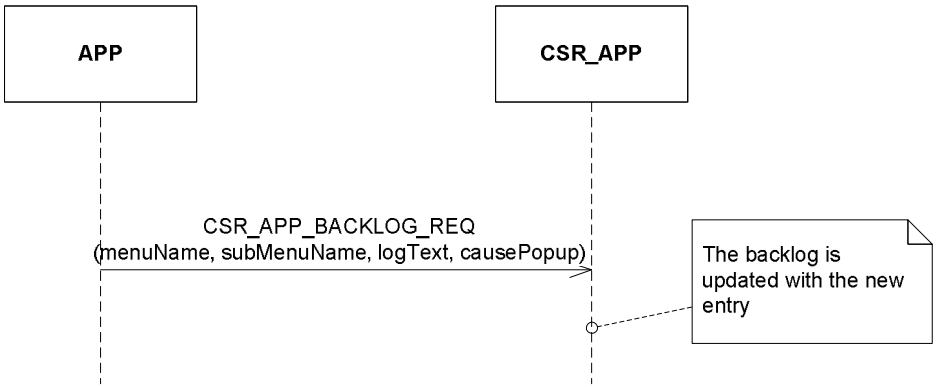

Figure 3: Example of sending a backlog message

3 CSR_APP Primitives

This section gives an overview of the primitives and parameters in the interface. All communication with CSR_APP is message based. To send messages to CSR_APP it is possible to use the library defined in csr_app_lib.h to easily construct the messages and dispatch them. For each signal that can be sent to CSR_APP there is a corresponding function that performs this operation. The functions name is the name of the corresponding signal in camel notation with the underscores removed and 'SendX' appended, where X is a number, which depends on the specific primitive (see the csr_app_lib.h file for further information). Example:

`CSR_APP_REGISTER_REQ` → `CsrAppRegisterReqSend2()`

All strings are UTF8 formatted with a null character termination.

In the following, the individual signals used in the interface are described.

3.1 CSR_APP_REGISTER

Primitives \ Parameters	type	phandle	menuName	subMenuName	menuIcon	subMenuIcon	Top	controlId
CSR_APP_REGISTER_REQ	✓	✓	✓	✓	✓	✓	✓	
CSR_ APP_REGISTER_CFM	✓							✓

Table 1: CSR_APP_REGISTER Primitives

Description

These signals are used for registering a menu and submenu item in the application framework.

Parameters

type	Signal type.
phandle	Queue ID of the application. The confirm is sent to this queue.
menuName	The name of the menu item to add in the main menu list
subMenuName	The name of the menu item to add in the submenu under “menuName” if any.
menuIcon	Icon to use for the item in the main menu list. If multiple apps register and specify different icons, it is undefined which icon will be used. See csr_ui_icon_index.h for valid values.
subMenuIcon	Icon to use for the sub menu item. See csr_ui_icon_index.h for valid values.
top	Set to TRUE to add to top of the sub menu or FALSE to add to bottom.
controlId	Unique identifier the application can use to detect which menu item the user selected. NB: This parameter is only useful if the same application plans to register for more than one menu items in the application framework. Otherwise it can just be ignored.

3.2 CSR_APP_TAKE_CONTROL

Primitives \ Parameters	type	controlId
CSR_APP_TAKE_CONTROL_IND	✓	✓

Table 2: CSR_APP_TAKE_CONTROL Primitives

Description

The application framework sends this signal to the application whenever a user selects the submenu _or_ menu item it has registered.

Parameters

type	Signal type.
phandle	Queue ID of the application. The confirm is sent to this queue.
controlId	Unique identifier the application can use to detect which menu item the user selected. NB: This parameter is only useful if the same application plans to register for more than one menu items in the application framework. Otherwise it can just be ignored.

3.3 CSR_APP_BACKLOG

Primitives \ Parameters	type	menuName	subMenuName	logText	causePopup	causeBacklog
CSR_APP_BACKLOG_REQ	✓	✓	✓	✓	✓	✓

Table 3: CSR_APP_BACKLOG Primitives.

Description

The application sends this signal whenever it has information it normally would have printed with a normal printf function.

Parameters

type	Signal type.
menuName	The name of the menu item to add in the backlog menu list
subMenuName	The name of the menu item to add in the submenu under “menuName” if any in the backlog tree
logtext	The actual string to write in the backlog.
causePopup	Boolean the application can set as TRUE if it decides that this information is important enough to generate a popup.
causeBacklog	Set to TRUE to add the message to the backlog.

Because it often is necessary to print strings with a variable set of parameters there exists a special lib function for sending a CSR_APP_BACKLOG_REQ.

The prototypes:

```
void CsrAppBacklogReqSend(CsrUtf8String *menuName, CsrUtf8String *subMenuName,
CsrBool causePopup, const CsrCharString *fmt, ...);

void CsrAppBacklogReqSend2(CsrUtf8String *menuName, CsrUtf8String *subMenuName,
CsrBool causePopup, CsrBool causeBacklog, const CsrCharString *fmt, ...);
```

The former fixes causeBacklog to TRUE, while the latter allows setting it explicitly. Example:

```
CsrAppBacklogReqSend2(CsrUtf8StrDup(“BT”), CsrUtf8StrDup(“GAP”), FALSE, TRUE,
“Bonding failed with result=%d”, result);
```

4 Document References

Terms and Definitions

CSR	Cambridge Silicon Radio
CSR_UI	UI Emulator

Document History

Revision	Date	History
1	09 JUN 09	Ready for release.
2	30 NOV 09	Reade for release 2.0.0
3	20 APR 10	Ready for release 2.1.0
4	OCT 10	Ready for release 2.2.0
5	DEC 10	Ready for release 3.0.0
6	MAY 11	Ready for release 3.1.0

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