



ARIB Extension

デモンストレーション

MITSUBISHI Electric Corp.



AVGWGにおけるアクティビティ

Jan, 2004 Plenary Meeting

ARIB 5プレーンの紹介

Jan, 2005 Plenary Meeting

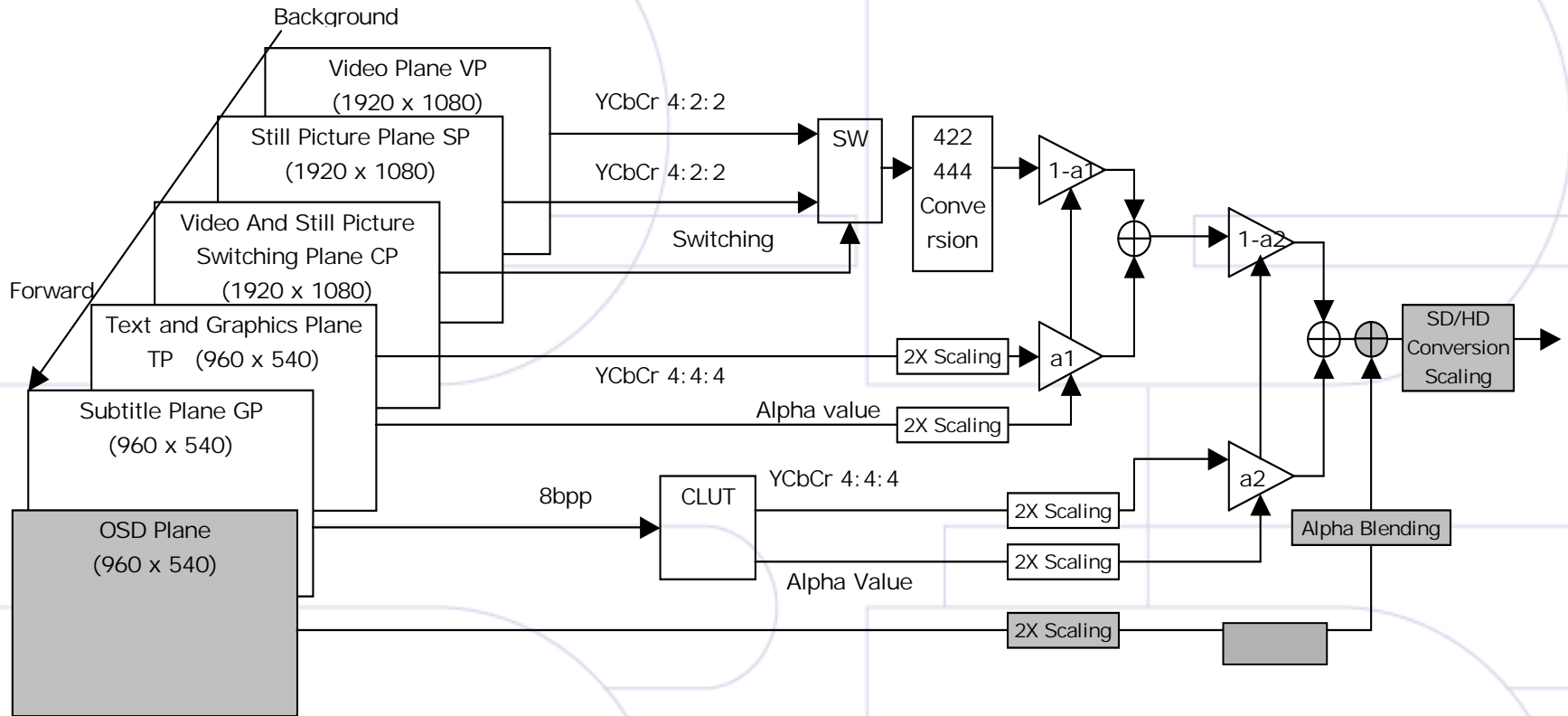
x86によるBML Browser on DirectFBのデモ

Jan, 2006 Technical Jamboree

組込み環境によるARIB Extension for DirectFBのデモ



ARIB 5-plane model





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ARIB data-broadcasting browser

Mitsubishi Electric Corp.

ARIB: Association of Radio Industries and Businesses

(The standard body for broadcasting in Japan)

A prototype of ARIB data-broadcasting browser is built on DirectFB with extension. It presents reproduced images of data-broadcast multimedia contents, composed of a video, still pictures, texts and graphics.

With the extension we have made, DirectFB well supports AVG requirements of the ARIB data-broadcasting, such as composition of multiple graphics planes and video plane.

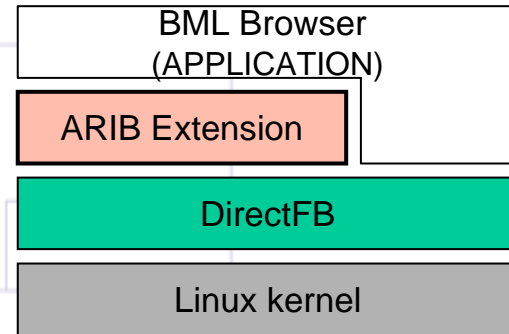
Because DirectFB itself already supports MHP, this extended window system is globally applicable to CE devices like DTV/STB/DVD as their software platform.



Video plane

Still picture plane

Text & graphic plane



BML: Broadband Markup Language

Not decided yet (but, under positive consideration)

Demo: x86 (Pentium) possibly any hardware



CE Linux Forum



20 Jan, 2006

CE Linux Forum Technical Jamboree #6
Mitsubishi Electric Corp.

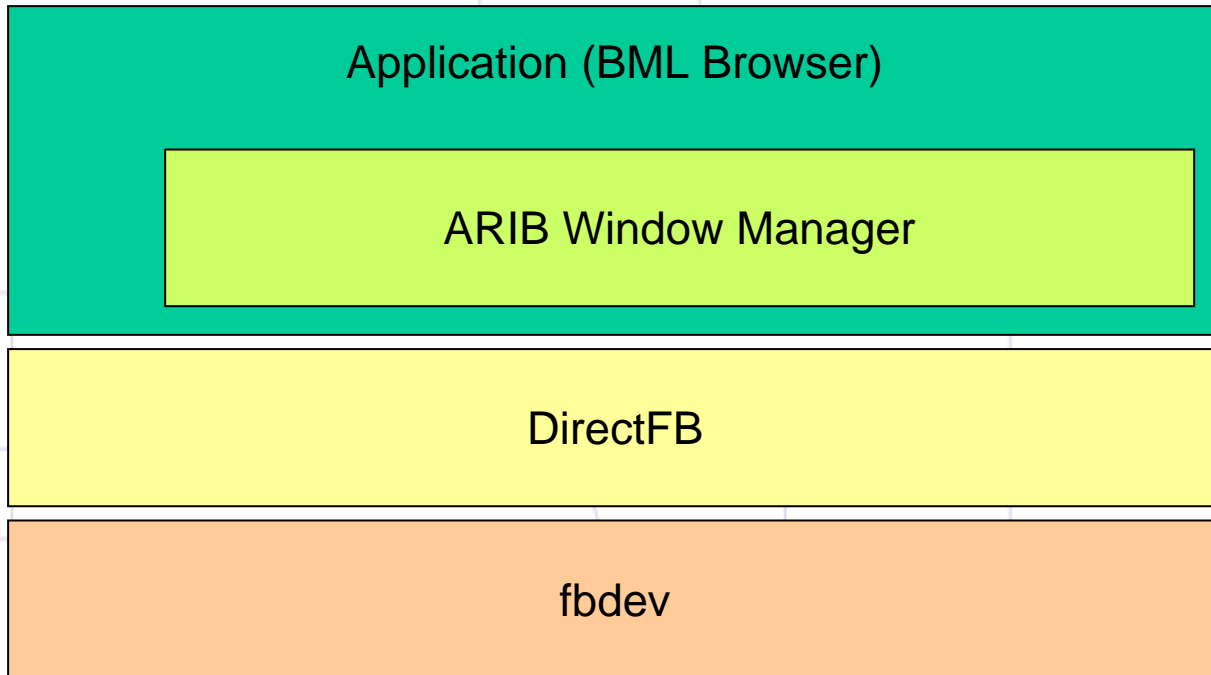


Demonstration Spec. at Jan,2005 Plenary Meeting

- Frame Buffer : pure fbdev
- Video Interface : not supported
- Window System : pure DirectFB
- Sound System : not supported
- Browser Application
 - RGB色空間
 - 通常フォント
 - 字幕・スーパー非対応



Demonstration Spec. at Jan,2005 Plenary Meeting





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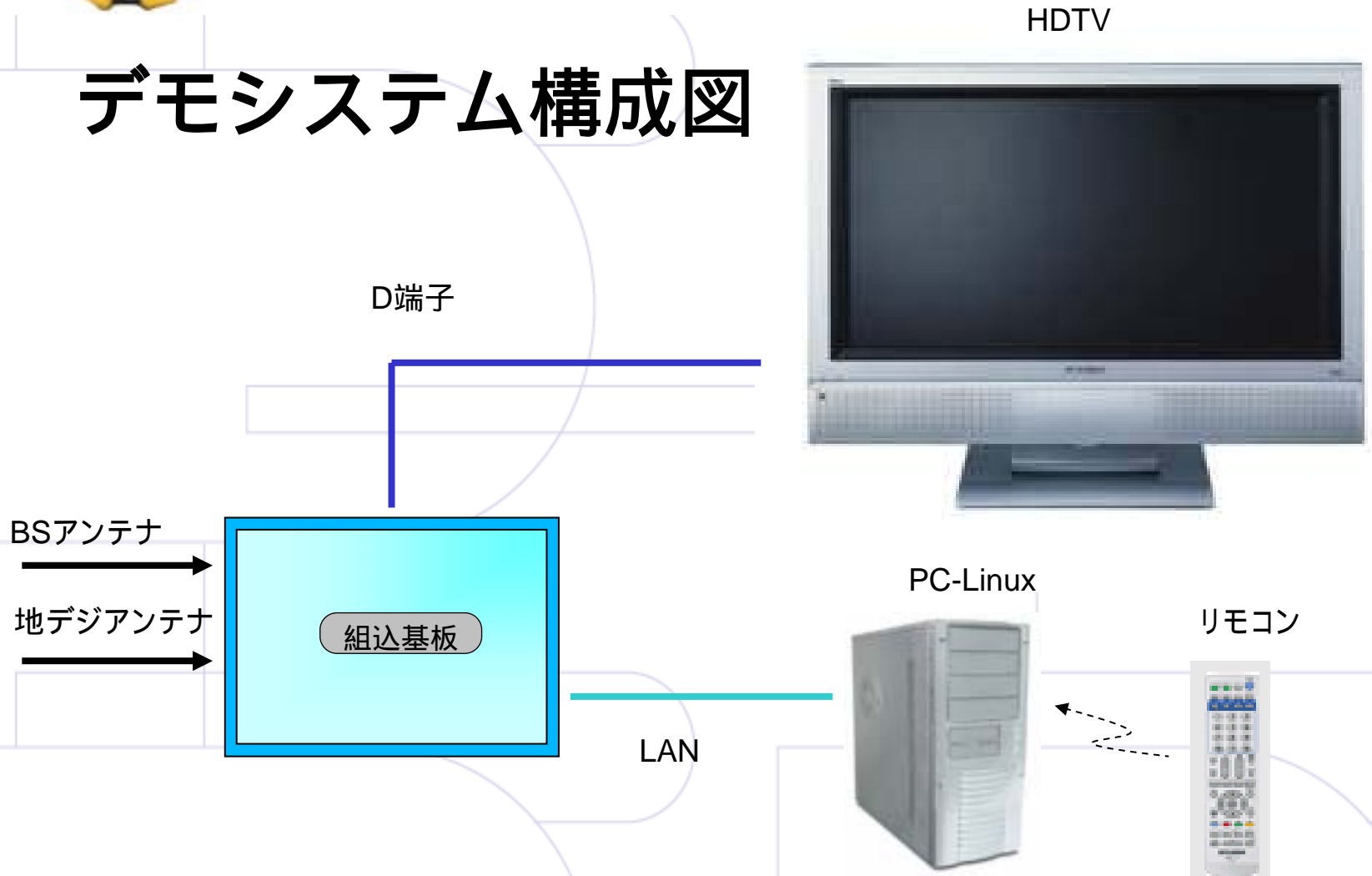
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デモシステム構成図



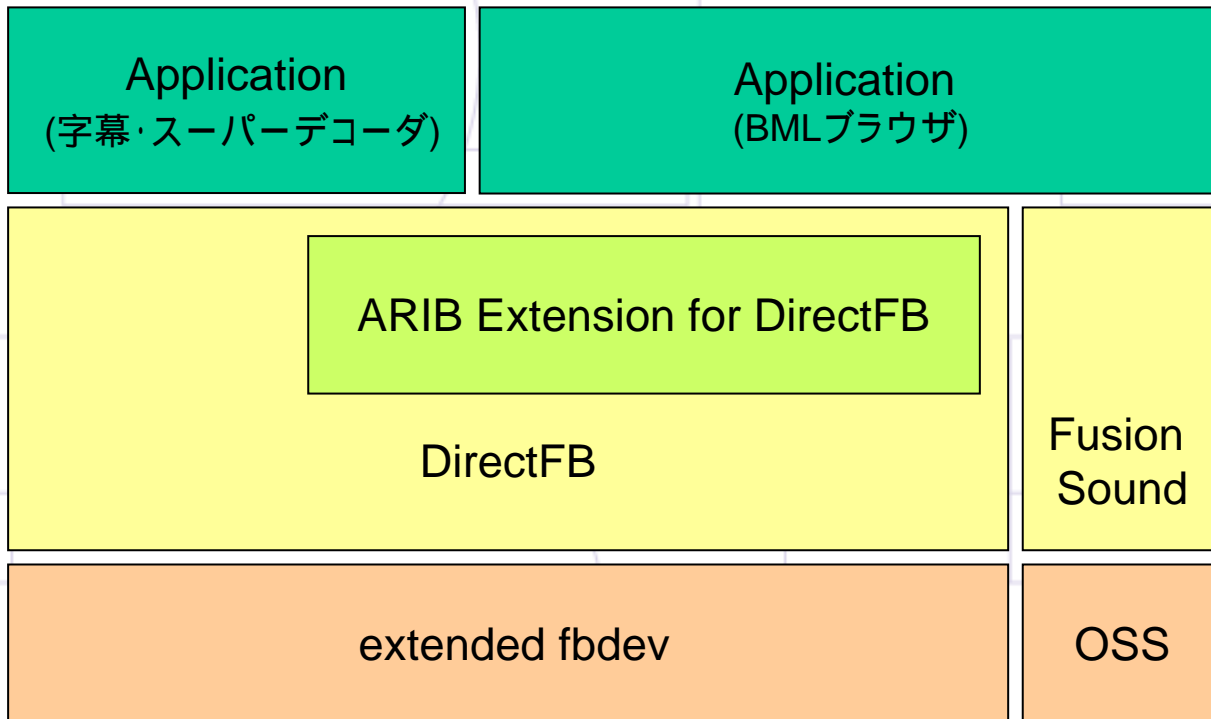


Demonstration Spec. at Jan,2006 Technical Jam.

- Frame Buffer : EXTENDED fbdev
- Video Interface : EXTENDED video provider on DirectFB
- Window System : EXTENDED DirectFB
- Sound System : FusionSound
- Browser Application
 - YCbCr色空間
 - ARIB対応フォント
 - 字幕・スーパー対応

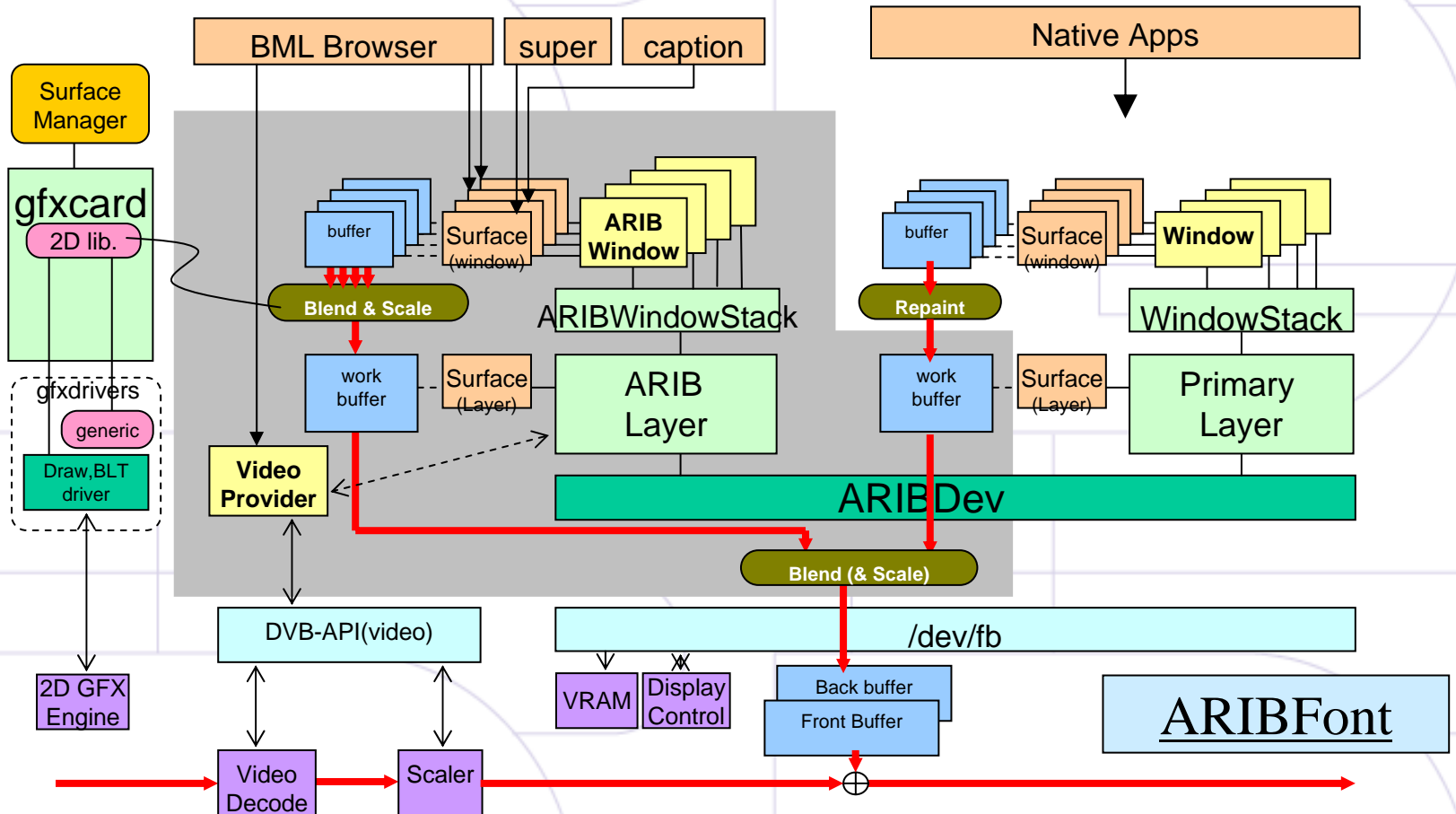


Demonstration Spec. at Jan,2006 Technical Jam.



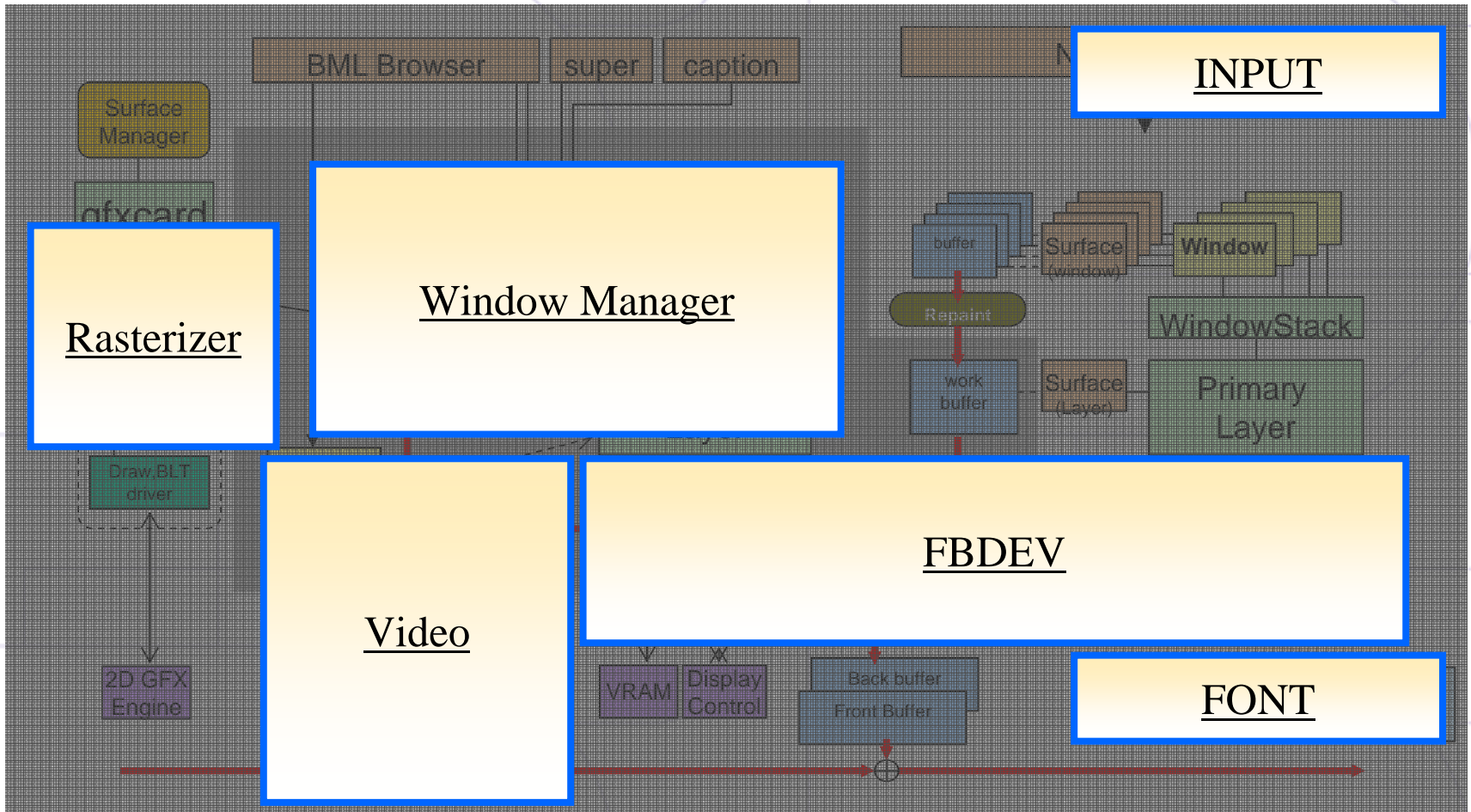


ARIB-extended structure





ARIB-extended structure





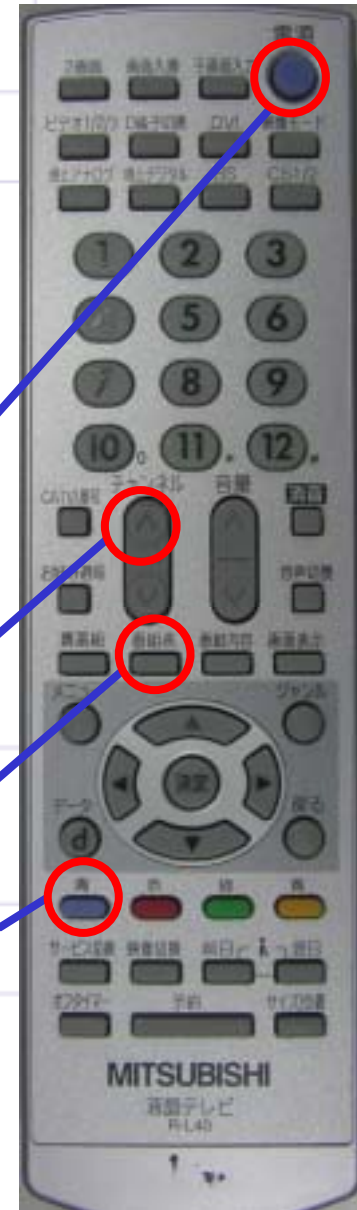
リモコンキー拡張

- DirectFBではDTV向けの
キー定義がされている

たとえば

- DIKS_POWER
- DIKS_CHANNELUP
- DIKS_EPG
- DIKS_BLUE

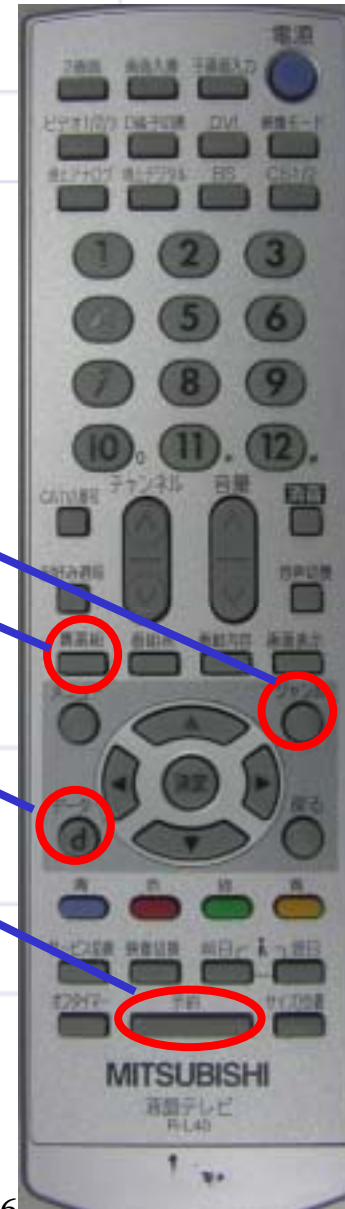
など





リモコンキー拡張(cont.)

- 定義されていないボタン
 - ジャンル
 - 裏番組
 - データ
 - 予約など





リモコンキー拡張(cont.)

- DTV/DVRなど向けリモコンキー拡張
みなさんで決めていきませんか？
- 実装例

字幕	DIKS_CAPTION
データ放送	DIKS_DATA
放送サービス切換	DIKS_SERVICE_SWITCH
画面表示	DIKS_OSD
裏番組	DIKS_EPG_CURRENT
ジャンル・検索	DIKS_FIND
予約	DIKS_RESERVE



今後の予定

- ARIB extension for DirectFBを来年度中旬までには公開予定

<http://www.directfb.org>