**OSD Engine Spec**

1. Full Diagram

CPU

Video

LVDS

RAM

Flash

ARGB8888

OSD Engine

Blending

DMA

OSD

Frame Buffer

DMA

OSD Scaler

Scene Resource

1. User cases

## Monitor

For monitor mode without OSD frame buffer, OSD engine is enabled.

CPU

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## ATV with OSD Engine

ATV with OSD engine use same diagram with monitor mode

CPU

Video

LVDS

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OSD

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## ATV without OSD Engine

For some cases, if OSD cannot fulfill the requirement of OSD drawing, CPU can draw OSD frame buffer directly. In this mode, OSD Engine is disabled. CPU can utilize DMA to improve OSD performance.

CPU

Video

LVDS

RAM

Flash

ARGB8888

OSD Engine

Blending

DMA

OSD

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DMA

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Scene Resource

1. Features

## RAM requirement

The RAM requirement is determined by requirement, which includes following factors.

* OSD resolution
* Bitmap count
* Font count, whether support Chinese

For 960x540 OSD

|  |  |  |  |
| --- | --- | --- | --- |
|  | Monitor | ATV with OSD Engine | ATV without OSD Engine |
| RAM | 32K | 128K | 960x540x4=2M |
|  |  |  |  |

## OSD Engine Supported

|  |  |  |
| --- | --- | --- |
| Object | Count | Description |
| Scene | 1 |  |
| Window | 32 | 8 windows support Bitmap/Text/Rectangle/Line  24 windows only support Rectangle/Line  Support z-order  Support alpha blending  Support any overlap between windows  Window RAM is configurable. |
| Palette | 8 | Per window  First palette support 65536 colors  Other palette support 256 colors |
| Bitmap | 8 | Per window  Support multiple bitmaps data combined to one buffer, only one of them can show at one time  tile |
| Text | 32 | Per window |
| Rectangle | 64 | Per window  Support 4 colors for 4 border, border weight  Gradient color fill, left to right, top to bottom, corner to center |
| Line | 64 | Per window  Line color  Line border  Line weight |
| Overlap in one window |  | Same ingredient type cannot overlap  Difference ingredient type can overlap |

## Output format

ARGB8888 format