Traveo2BitmapConverter

Description

This document provides a complete list of bitmap formats supported by the Traveo2 Target.
The formats are grouped into categories such as **Basic**, **Grayscale**, **RLE (Run length Encoding)**, **RLA (Run-Length Adaptive)**, **RLAD** (**Run-Length Adaptive Dithering)**, **CLUT** (**color lookup table)**, **JPEG**, and **YUV**.

Below are the supported pixel formats with their corresponding type, format code, and a brief description.

These bitmap converters are supported only on the target. Windows simulation uses the default bitmap converter.

Traveo2 Bitmap Format List

Basic Formats

These formats represent the fundamental bitmap types supported by Traveo2, defining basic RGB and alpha channel combinations with different bit depths for color and transparency.

Serial No	Format	Description
1	Traveo2ExtendedBitmapFormatR6G6B6A6	6 bits per channel with alpha.
2	Traveo2ExtendedBitmapFormatR6G6B6	6 bits per RGB channel.
3	Traveo2ExtendedBitmapFormatR3G3B2	Compact 8-bit color format.
4	Traveo2ExtendedBitmapFormatA8	8-bit alpha-only channel.
5	Traveo2ExtendedBitmapFormatA4	4-bit alpha-only channel.
6	Traveo2ExtendedBitmapFormatA2	2-bit alpha-only channel.
7	Traveo2ExtendedBitmapFormatA1	1-bit alpha mask.

Grayscale Formats.

These formats are used for grayscale images, representing luminance information with optional alpha channels for transparency control.

Serial No	Format	Description
1	Traveo2ExtendedBitmapFormatRGB8	8-bit grayscale RGB.
2	Traveo2ExtendedBitmapFormatA8RGB8	8-bit grayscale RGB with alpha.
3	Traveo2ExtendedBitmapFormatRGB4	4-bit grayscale RGB.
4	Traveo2ExtendedBitmapFormatA4RGB4	4-bit grayscale RGB with alpha.

RLE (Run-Length Encoded) Formats.

These formats use Run-Length Encoding (RLE) to compress bitmap data, efficiently storing repeated pixel values while supporting various RGB and alpha channel combinations.

Serial No	Format	Description
1	Traveo2ExtendedBitmapFormatRleR8G8B8A8	RLE-compressed 32-bit color (8 bits per channel).
2	Traveo2ExtendedBitmapFormatRleR8G8B8	RLE-compressed 24-bit color.
3	Traveo2ExtendedBitmapFormatRleR6G6B6A6	RLE-compressed 6-bit per channel format with alpha.
4	Traveo2ExtendedBitmapFormatRleR6G6B6	RLE-compressed 6-bit RGB.
5	Traveo2ExtendedBitmapFormatRleR4G4B4A4	RLE-compressed 16-bit RGBA.
6	Traveo2ExtendedBitmapFormatRleR5G5B5A1	RLE-compressed 16-bit RGBA (5-5-5-1).
7	Traveo2ExtendedBitmapFormatRleR5G6B5	RLE-compressed 16-bit RGB (5-6-5).
8	Traveo2ExtendedBitmapFormatRleA8	RLE-compressed 8-bit alpha mask.
9	Traveo2ExtendedBitmapFormatRleA4	RLE-compressed 4-bit alpha mask.
10	Traveo2ExtendedBitmapFormatRleA2	RLE-compressed 2-bit alpha mask.
11	Traveo2ExtendedBitmapFormatRleA1	RLE-compressed 1-bit alpha mask.

RLE Grayscale Formats

These formats combine grayscale image representation with Run-Length Encoding (RLE) compression, reducing memory usage while maintaining luminance and optional alpha information.

Serial No	Format	Description
1	Traveo2ExtendedBitmapFormatRleRGB8	RLE-compressed 8-bit grayscale RGB.
2	Traveo2ExtendedBitmapFormatRleA8RGB8	RLE-compressed grayscale with 8-bit alpha.
3	Traveo2ExtendedBitmapFormatRleRGB4	RLE-compressed 4-bit grayscale RGB.
4	Traveo2ExtendedBitmapFormatRleA4RGB4	RLE-compressed 4-bit grayscale with alpha.
5	Traveo2ExtendedBitmapFormatRleRGB1	RLE-compressed 1-bit grayscale (monochrome).

RLA (Run-Length Adaptive) Formats.

These formats use Run-Length Adaptive (RLA) compression, which dynamically adjusts compression based on pixel patterns to achieve better efficiency while preserving image quality across various color and alpha depths.

Serial No	Format	Description
1	Traveo2ExtendedBitmapFormatRlaR8G8B8A8	RLA-compressed 32-bit RGBA.
2	Traveo2ExtendedBitmapFormatRlaR8G8B8	RLA-compressed 24-bit RGB.
3	Traveo2ExtendedBitmapFormatRlaR8GB8A8	RLA-compressed 24-bit RGBA (8-4-4-8).
4	Traveo2ExtendedBitmapFormatRlaR6G6B6A6	RLA-compressed 6-bit per channel RGBA.
5	Traveo2ExtendedBitmapFormatRlaR6G6B6	RLA-compressed 6-bit RGB.
6	Traveo2ExtendedBitmapFormatRlaR4G4B4A4	RLA-compressed 16-bit RGBA.
7	Traveo2ExtendedBitmapFormatRlaR5G5B5A1	RLA-compressed 16-bit RGBA (5-5-5-1).
8	Traveo2ExtendedBitmapFormatRlaR1G1B1A1	RLA-compressed 4-bit color with 1-bit alpha.
9	Traveo2ExtendedBitmapFormatRlaR5G6B5	RLA-compressed 16-bit RGB (5-6-5).
10	Traveo2ExtendedBitmapFormatRlaA8	RLA-compressed 8-bit alpha.
11	Traveo2ExtendedBitmapFormatRlaA4	RLA-compressed 4-bit alpha.
12	Traveo2ExtendedBitmapFormatRlaA2	RLA-compressed 2-bit alpha.
13	Traveo2ExtendedBitmapFormatRlaA1	RLA-compressed 1-bit alpha.

RLA Grayscale Formats

These formats apply Run-Length Adaptive (RLA) compression to grayscale images, optimizing storage while maintaining brightness and optional alpha transparency information.

Serial No	Formats	Description
1	Traveo2ExtendedBitmapFormatRlaRGB8	RLA-compressed grayscale RGB (8-bit).
2	Traveo2ExtendedBitmapFormatRlaA8RGB8	RLA-compressed grayscale RGB with 8-bit alpha.
3	Traveo2ExtendedBitmapFormatRlaRGB4	RLA-compressed grayscale RGB (4-bit).
4	Traveo2ExtendedBitmapFormatRlaA4RGB4	RLA-compressed grayscale RGB (4-bit + alpha).
5	Traveo2ExtendedBitmapFormatRlaRGB1	RLA-compressed grayscale (1-bit monochrome).

RLAD (Run-Length Adaptive Dithering) Formats

These formats use Run-Length Adaptive Dithering (RLAD) compression, combining adaptive run-length encoding with dithering techniques to preserve visual quality and smooth gradients in compressed images.

Serial No	Format	Description
1	Traveo2ExtendedBitmapFormatRleR8G8B8A8	RLE-compressed 32-bit color (8 bits per channel).
2	Traveo2ExtendedBitmapFormatRleR8G8B8	RLE-compressed 24-bit color.
3	Traveo2ExtendedBitmapFormatRleR6G6B6A6	RLE-compressed 6-bit per channel format with alpha.
4	Traveo2ExtendedBitmapFormatRleR6G6B6	RLE-compressed 6-bit RGB.
5	Traveo2ExtendedBitmapFormatRleR4G4B4A4	RLE-compressed 16-bit RGBA.
6	Traveo2ExtendedBitmapFormatRleR5G5B5A1	RLE-compressed 16-bit RGBA (5-5-5-1).
7	Traveo2ExtendedBitmapFormatRleR5G6B5	RLE-compressed 16-bit RGB (5-6-5).
8	Traveo2ExtendedBitmapFormatRleA8	RLE-compressed 8-bit alpha mask.
9	Traveo2ExtendedBitmapFormatRleA4	RLE-compressed 4-bit alpha mask.

10	Traveo2ExtendedBitmapFormatRleA2	RLE-compressed 2-bit alpha mask.
11	Traveo2ExtendedBitmapFormatRleA1	RLE-compressed 1-bit alpha mask.

RLAD Grayscale Formats

These formats apply Run-Length Adaptive Dithering (RLAD) compression to grayscale images, maintaining smooth tonal transitions and optional transparency while minimizing memory usage.

Serial No	Format	Description
1	Traveo2ExtendedBitmapFormatRladRGB8	RLAD-compressed grayscale RGB (8-bit).
2	Traveo2ExtendedBitmapFormatRladA8RGB8	RLAD-compressed grayscale RGB with alpha.
3	Traveo2ExtendedBitmapFormatRladRGB4	RLAD-compressed grayscale RGB (4-bit).
4	Traveo2ExtendedBitmapFormatRladA4RGB4	RLAD-compressed grayscale with alpha (4-bit).
5	Traveo2ExtendedBitmapFormatRladRGB1	RLAD-compressed grayscale (1-bit monochrome).

CULT Masking

This format uses a Color Look-Up Table (CULT) to reference predefined color entries, enabling efficient color representation and masking with reduced memory requirements.

Serial No	Format	Description
1	Traveo2ExtendedBitmapFormat_Clut	Uses color lookup table.

JPEG Format

This format supports standard JPEG-compressed images, providing high compression efficiency for photographic content.

- To enable this format on the target, set the corresponding CMake flag in the toolchain file during CMake configuration.
- This feature is supported only on the Traveo-II 6M and 6MDDR target boards.

Serial No	Format	Description

1	Traveo2ExtendedBitmapFormat_Jpeg	JPEG compressed image in any supported color format. For list of supported color formats, please check JPEG Bitmap Converter Documentation

YUV Formats

These formats represent image data using YUV color encoding, supporting various chroma subsampling modes like 4:2:0, 4:2:2, and 4:4:4 for efficient video and image processing.

Serial No	Format	Description
1	Traveo2ExtendedBitmapFormat_YUV420	YUV planar 4:2:0 format.
2	Traveo2ExtendedBitmapFormat_VYUY422	Packed YUV 4:2:2 (VYUY order).
3	Traveo2ExtendedBitmapFormat_YVYU422	Packed YUV 4:2:2 (YVYU order).
4	Traveo2ExtendedBitmapFormat_YUV444	YUV 4:4:4 full color format.

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