# High-density transcoding card C132

## Product View

**Product Image：**



 C132 without external interfaces

## Product Specifications

* Standard card of EMR platform occupies a slot;
* MPE-2, H.264 transcoding each other, a single card supports up to 24 SD or 6 HD transcoding;
* SD single program supports one audio transcoding one audio pass-through function;
* HD single program supports two audio transcoding;
* Supports MPEG-1 LayerII, LC-AAC, HE-AAC v1, HE-AAC v2, Dolby Digital audio encoding format;
* Highly integrated transcoding equipment, EMR can support full with 144 SD or 36 HD transcoding;
* High-quality, compared to original C109, C110, C150 Series cards, the picture quality has improved;
* H.264 or MPEG-2 statistical multiplexing function;
* Support WEB, eNetManager and other network management approach;

## Product Features

**1.7.1 Transcoding**

**1.7.1.1 Video**

**1.7.1.1.1 Product Features**

Supports H.264, MPEG-2 to H.264, MPEG-2 anyway transcoding

H.264, MPEG-2 supports 4: 2: 0 video processing capabilities

Single card support up to 24 SD or 6 HD transcoding

**1.7.1.1.2 Resolution**

**Transcoding input resolution**

|  |  |
| --- | --- |
| Resolution | Frame rate |
| 1920/1440/1280/960\*1080 | 23.98fps/24 fps/25 fps /29.97 fps /30 fps |
| 1280/960/640\*720 | 23.98fps/24 fps/25 fps /29.97 fps /30 fps/50 fps/59.97fps/60fps |
| 720/704/544/528/480/352\*576 | 25fps |
| 720/704/544/528/480/352\*480 | 29.97fps |

**Transcoding output resolution**

|  |  |
| --- | --- |
| Resolution | Frame rate |
| 1920/1440/1280/960\*1080 | 23.98fps/24 fps/25 fps /29.97 fps /30 fps |
| 1280/960/640\*720 | 23.98fps/24 fps/25 fps /29.97 fps /30 fps/50 fps/59.97fps/60fps |
| 720/704/544/528/480/352\*576 | 25fps |
| 720/704/544/528/480/352\*480 | 29.97fps |
| 640\*480/640\*360/480\*320/496\*288 | 23.98fps/24 fps/25 fps /29.97 fps /30 fps |
|  |  |

**Resolution Conversion**

Resolution Conversion：

|  |  |
| --- | --- |
| Input Resolution | Output resolution |
| 1920/1440/1280/960\*1080 | 1920/1440/1280/960\*1080 |
| 1280/960/640\*720 |
| 720/704/544/528/480/352\*576/480 |
| 640\*480/640\*360/480\*320 |
| 1280/960/640\*720 | 1920/1440/1280/960\*1080 |
| 1280/960/640\*720 |
| 720/704/544/528/480/352\*576/480 |
| 640\*480/640\*360/480\*320 |
| 720/704/544/528/480/352\*576 | 1920/1440/1280/960\*1080 |
| 1280/960/640\*720 |
| 720/704/544/528/480/352\*576/480 |
| 640\*480/640\*360/480\*320 |
| 720/704/544/528/480/352\*480 | 1920/1440/1280/960\*1080 |
| 1280/960/640\*720 |
| 720/704/544/528/480/352\*576/480 |
| 640\*480/640\*360/480\*320 |

Limit mode of output frame rate / frame field：

|  |  |  |
| --- | --- | --- |
| Resolution | Frame rate | Frame field mode |
| 1920/1440/1280/960\*1080 | 23.98fps/24 fps | Frame coding |
| 25 fps /29.97 fps /30 fps | Frame coding、Field coding、MBAFF、PAFF |
|  |  |  |
| 1280/960/640\*720 | 23.98fps/24 fps25 fps /29.97 fps /30 fps50 fps/59.97fps/60fps | Frame coding |
| 720/704/544/528/480/352\*576 | 25fps | Frame coding、Field coding、MBAFF、PAFF |
| 720/704/544/528/480/352\*480 | 29.97fps | Frame coding、Field coding、MBAFF、PAFF |
| 640\*480/640\*360/480\*320/496\*288 | 23.98fps/24 fps25 fps /29.97 fps /30 fps | Frame coding |
|  |  |  |

Note: The output frame rate must be equal to the input frame rate, frame rate conversion is not supported

**Rate limit**

|  |  |  |
| --- | --- | --- |
| Format | Types | Bit rate |
| H.264 | SD:min | 300kbps |
| HD:min | 500kbps |
| The total input-output Bit rate, max | 120Mbps |
| MPEG-2 | SD:min | 600kbps |
| HD:min | 1000kbps |
| The total input-output Bit rate, max | 128Mbps |

**1.7.1.1.3 Video encoding feature**

Encode Resolution: See transcoding output resolution

H.264 HD recommendation rate: 6 Mb/s

H.264 SD recommendation rate: 1.5Mb/s

GOP: 1~300

B number of frames: 0、1、2、3、4、5、6、7

Dynamic GOP: support, you can set the dynamic range.

Adaptive I / P frame insertion (Adaptive scene cut detection)

Entropy coding: CABAC, CAVLC

Encoding: Frame coding, Field coding, macro block level of field frame adaptive, frame level of frame field adaptive

Aspect ratio: 4:3、16:9

Pretreatment:（Skin Tone Detection）、（Fade Detection）、（Pre-Deblocking）、（Pre-Filtering）、(Adaptive Quantization)、De-interlacing, noise reduction, sharpening

The encoder delay: 0.7s

* H.264：

Coding grades: Baseline, Main, High

Coding rating: 1.0~1.3、2.0~2.2、3.0~3.2, 4.0~4.1

IDR frame rate: 0~255 GOPs

* MPEG-2：

Coding grades: Main

Coding rating: Main, High

Closed GOP：Open, close

**1.7.1.2 Audio**

**Product Features**

Mpeg-l layer2、AAC-LC、HE-AAC v1、HE-AAC v2、Dolby Digital to Mpeg-l layer2、AAC-LC、HE-AAC v1、HE-AAC v2、Dolby Digital transcoding.

Mpeg-l layer2、AAC-LC、HE-AAC v1、HE-AAC v2、Dolby Digital、Dolby Digital Plus Audio pass-through feature.

Currently single program can support two-way audio capabilities.

**Sampling frequency:** 48kHz/44.1kHz/32kHz

**Sampling accuracy:** 24-bit

Bit rate:

Dolby Digital Plus：(Only 48kHz sampling frequency coding)

 Dolby Digital：(Only 48kHz sampling frequency coding)

 Stereo, 96kbps-384kbps

 5.1 channel, 224 kbps-384kbps

 AAC-LC：

 Stereo, 32kbps ~ 384kbps

 Mono, 32kbps ~ 192kbps

 HE-AAC v1：

 Stereo, 32kbps~128kbps

 Mono, 32kbps~64kbps

 HE-AAC v2：

 Stereo, 32kbps~64kbps

 MPEG-1 LayII：

 Stereo, 32bps~384kbps

 Mono, 32kbps~192kbps

**1.7.1.3 Statistical multiplexing**

Single card supports 24 channels SD or 6-channel HD statistical multiplexing

Support for MPEG-2 or H.264 input

Support for MPEG-2 or H.264 output

Support for statistical multiplexing Bit rate visual query interface to view real-time graphics dynamic display

**1.7.2 Multi-screen**

**1.7.2.1 Video**

**1.7.2.1.1 Product Features**

**1.7.2.1.2 Video encoding**

Code Resolution: See Encoding output resolution

Coding rate: see Bit rate limit

HD H.264 recommendation rate:6 Mb/s

SD H.264 recommendation rate:1.5Mb/s

GOP length: 1 to 600

B number of frames: 0、1、2、3、4、5、6、7

Dynamic GOP: support, you can set the dynamic range.

Adaptive I / P frame insertion (Adaptive scene cut detection)

Entropy coding: CABAC, CAVLC

Encoding: Frame coding, Field coding, macro block level of field frame adaptive, frame level of frame field adaptive

Aspect ratio: 4:3、16:9

Pretreatment:（Skin Tone Detection）、（Fade Detection）、（Pre-Deblocking）、（Pre-Filtering）、(Adaptive Quantization)、De-interlacing, noise reduction, sharpening

The encoder delay: 0.7s

* H.264：

Coding grades: Baseline, Main, High

Coding rating: 1.0~1.3、2.0~2.2、3.0~3.2, 4.0~4.1

IDR frame rate: 0~5 GOPs

* MPEG-2：

Coding grades: Main

Coding rating: Main, High

Closed GOP：Open, close

**1.7.2.1.3 Resolution**

Multi-screen transcoding output supports resolutions

|  |  |
| --- | --- |
|  | **Resolution** |
| Horizontal | 1920, 1440, 1280, 1080, 1024, 960, 864, 854, 848, 800, 768, 720, 640, 544, 528, 512, 480, 416, 400, 360, 352, 320, 256, 240, 208, 192, 176, 160, 128, 96 |
| Vertical | 1080, 720, 640, 600, 576, 544, 540, 486, 480, 432, 384, 360, 320, 288, 272, 270, 240, 224, 192, 180, 160, 144, 120, 96 |

Any combination of the above resolution

Each mode supports multi-screen resolution combinations

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Input-output relationship** | **Output program number** | **Resolution level** | **Maximum resolution** | **Minimum resolution** | **Mode** |
| 1 in 1 out | Program 1 | L1 | 1920\*1080 | 432\*240 | SUMA\_01 |
| 1 in 2 out | Program 1 | L2 | 1280\*1080 | 320\*240 | SUMA\_02 |
| Program 2 | L2 |
| 1 in 3 out | Program 1 | L2 | 1280\*1080 | 320\*240 | SUMA\_03 |
| Program 2 | L3 | 1024\*576 | 352\*192 |
| Program 3 | L3 | 1024\*576 | 352\*192 |
| 1 in 4 out | Program 1 | L3 | 1024\*576 | 352\*192 | SUMA\_04 |
| Program 2 | L4 | 720\*576 | 240\*160 |
| Program 3 | L4 | 720\*576 | 240\*160 |
| Program 4 | L3 | 1024\*576 | 352\*192 |
| 1 in 5 out | Program 1 | L3 | 1024\*576 | 352\*192 | SUMA\_05 |
| Program 2 | L6 | 352\*576 | 128\*160 |
| Program 3 | L6 | 352\*576 | 128\*160 |
| Program 4 | L3 | 1024\*576 | 352\*192 |
| Program 5 | L6 | 352\*576 | 128\*160 |
| 1 in 6 out | Program 1 | L3 | 1024\*576 | 352\*192 | SUMA\_06 |
| Program 2 | L6 | 352\*576 | 128\*160 |
| Program 3 | L6 | 352\*576 | 128\*160 |
| Program 4 | L3 | 1024\*576 | 352\*192 |
| Program 5 | L6 | 352\*576 | 128\*160 |
| Program 6 | L6 | 352\*576 | 128\*160 |

**1.7.2.2 Audio**

**Product Features**

Mpeg-l layer2、AAC-LC、HE-AAC v1、HE-AAC v2、Dolby Digital to Mpeg-l layer2、AAC-LC、HE-AAC v1、HE-AAC v2、Dolby Digital transcoding.

Mpeg-l layer2、AAC-LC、HE-AAC v1、HE-AAC v2、Dolby Digital、Dolby Digital Plus Audio pass-through feature.

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**Sampling accuracy:** 24-bit

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 HE-AAC v1：

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 Stereo, 32kbps~64kbps

 MPEG-1 LayII：

 Stereo, 32bps~384kbps

 Mono, 32kbps~192kbps