



## **FOCUS-CA** On board video management & processing computer for security, surveillance & entertainment



**Video & metadata multiplexing / transcoding / recording  
streaming / mosaic / overlay / display  
image processing & Artificial Intelligence**

The **FOCUS** product line is a family of embedded computers dedicated to video and image processing. **FOCUS** can be used for linefit or retrofit and can be tuned/customised according to customer requirements **FOCUS** includes:

- ✓ Analog to digital and digital to analog converter for DACU application.
- ✓ An embedded recorder & player with a removable rugged solid state disk.
- ✓ Camera acquisition, streaming & transcoding with augmented reality.
- ✓ Video and metadata SATCOM streamer.
- ✓ Image processing and machine learning capabilities (fusion, object detection, face recognition, ...).

### KEY FEATURES

*low bit rate, low latency, high quality, HD, time stamping, synchronised metadata for evidence, audio, SSD media, WIFI, remote control, DO160, on demand hardware & software customisation*

### KEY APPLICATIONS

- ✓ Cockpit video management unit:
  - ✓ Internal/external cameras acquisition and multiplexing.
  - ✓ Multi format acquisition/generation (SDI, PAL / NTSC, H264 / H265).
- ✓ Video streaming for passenger entertainment:
  - ✓ Moving map / external camera fusion.
  - ✓ Augmented reality in real time.
  - ✓ SSD management.
- ✓ Aircraft video surveillance (cabin / cargo /cockpit / bulk) using image processing & AI capabilities:
  - ✓ Loading/unloading surveillance.
  - ✓ Boarding/landing & cabin readiness conformity.
  - ✓ Inflight event detection (air rage, movement / comportment detection).
- ✓ Pushback / Taxi monitoring.





## VIDEO SPECIFICATIONS

### Video Input

Format: 1080p/i 720p 576i 480i

### Digital input:

- SDI (up to 4)
  - SMPTE259M-C
  - SMPTE292M, SMPTE-424M
  - 75 Ω common mode
- Ethernet

### Analog input: PAL/NTSC (up to 4)

- Composite (ITU-R BT.1700)
- 75 Ω common mode
- 100 Ω differential mode

### Video Output

Format: 1080p/i 720p 576i 480i

### Digital video:

- SDI (up to 2)
  - SMPTE259M-C,
  - SMPTE292M, SMPTE-424M
  - 75 Ω common mode
- Ethernet

### Analog video: PAL/NTSC (up to 2)

- Composite (ITU-R BT.1700)
- 75 Ω common mode
- 100 Ω differential mode

### Compression/Decompression Multiple Profile:

- For SATCOM (low bitrate with resize & reframe)
- For Recording with High Quality
- Low latency (up to 100 ms)

### Encoding/Decoding algorithm:

- HEVC/H.265
- MPEG-4 AVC/H.264
- JPEG snapshot & photo
- 64 Kbit/s to 15Mbit/s

### Video Processing

- Video crossbar (copy, mosaic, ...)
- Resize/Reframe
- CABAC, CAVLC
- Noise Reduction filters
- MJPEG Snapshot/photo in real time @ 25/30 Hz with associated metadata

### Image Processing Capabilities

- Image enhancement/stabilisation
- ROI detection
- Object recognition & Tracking
- Sensors fusion
- Machine learning
- Others on request

## METADATA INPUTS

- KLV over SDI Ancillary data (SMPTE RP214) or over Ethernet
- ESD line 21
- KLV on Ethernet or over RS
- NMEA 0183 over RS
- Other metadata input on request

## PICTURE TIME STAMPING

- Extracted from SDI ancillary data
- Extracted from VITC
- Synchronized : PTP or NTP server

## AUDIO SPECIFICATIONS

### Audio Input / Output

- Analogic
- 2 audio inputs / outputs
- 1,0 Vpp/600 Ω
- 48 kHz/16 bits sampling

### Audio Compression

- MPEG-1 Layer III
- 32 to 128 Kbit/s

## IT SPECIFICATIONS

- 1 x 100 BT Ethernet ports
- 1 x 1000 BT Ethernet ports
- 2 x RS
- Discrete: 1 input & 1 output

## ETHERNET INPUT/OUTPUT

Video, Audio, metadata, Snapshot & Photo captured/streamed over RTP/UDP (broadcast/unicast/multicast)

- Audio, video, metadata MPEG-TS output stream synchronous or asynchronous
  - Synchronous: exact KLV time/picture time association
  - Asynchronous: with a 80 ms latency
- Dictionaries used for KLV generation
- MJPEG Snapshot & photo over IP with associated KLV

## RECORDING/REPLAY

Storage media can be read/write by standard PC and recorded files can be played by COTS player such as VLC

### Recording files

- Record all streams on removable media
- Auto segmenting files for secured records
- Record Control/Command: Start, stop, mark

### Replaying files or streams

- Read from Flash media files & generated over MPEG-TS/IP streams
- Read from media files & decoded for display
- Replay Control/Command: Play, pause, fast rewind, forward (X2/X4/X8/X16/X24)
- Next/Previous marked event

## TRANSCODING

Decoding a stream and reencoding with a different profile

**Input:** over IP (or SSD media) MPEG-TS/RTP audio, metadata & photo

### Processing :

- H.264/H.265 decoding and H.264/H.265 re-encoding with bitrate modification and with profile modification (resize, reframe, ...).
- Metadata demultiplex/remultiplex with KLV filter and dictionary change
- Converts KLV metadata as MPEG-TS Subtitles (VLC media player compliant).

### Output:

ISO/IEC 13818-1 with subtitles streams over IP (or to flash media)

## CONTROL/COMMAND

- (Start/Stop recording, Mark Event, Bitrate, ...)
- By the FOCUS Front panel
  - Via SNMP V3
  - Using web embedded server

## PHYSICAL/ENVIRONMENTAL

- NATO installation (DZUS)
- DO160 qualification
- Connector: MIL STD-38999
- Size: (L)255x(W)145 x(H)57 mm (H=95 mm with heatsink)
- Weight: 2,9 kg (3,5 kg with heatsink)
- Power: 28 VDC x 30-60 W,
- Temperature: -35°C to +71°C (with heatsink and/or airflow)

Customized H/W configuration available: with/without control/command front panel, with/without heatsink on top/bottom block, with/without energy tank , ...

