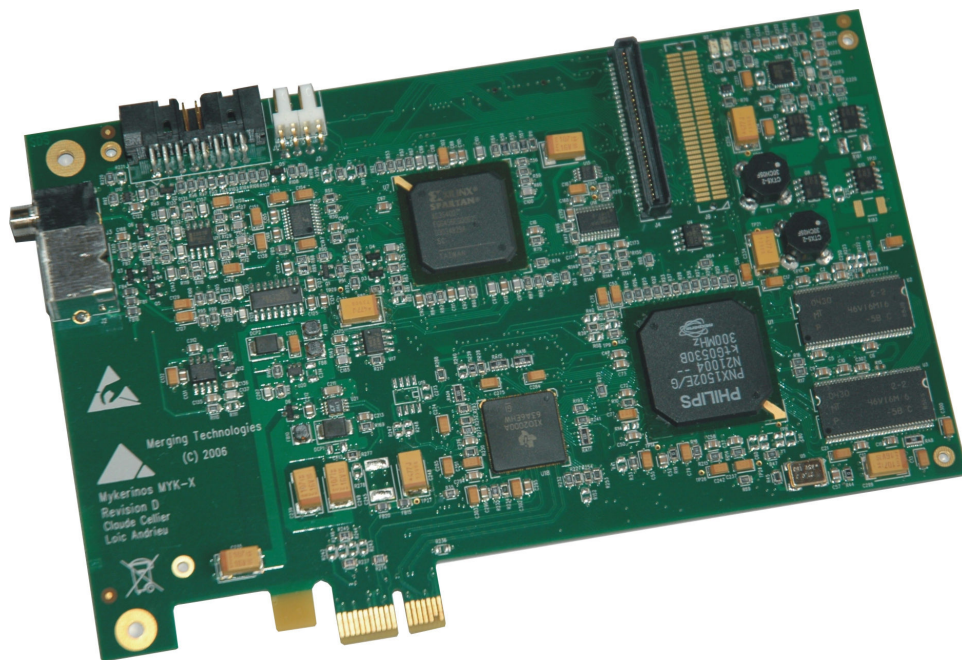# Mykerinos-X

The Audio Processing Board

User Manual

1 IMPORTANT NOTICE:

Please read the following information very carefully before attempting any installation. Failure to comply with the precise instructions may result in damage to your Merging hardware. Please read this entire section of the manual carefully before installation.

1.1 STATIC DANGER NOTICE:

Please note that the Mykerinos-X board contains delicate electronic components that can be damaged or even destroyed when exposed to static electricity. Take all necessary precautions not to discharge static electricity when touching any of the Mykerinos components.

1.2 INFORMATION FOR THE USER:

Mykerinos-X and its daughter card comply with the following specifications:

EMC Emissions
EN 55022 : 1994 /A1 : 1995 /A2 : 1997 Class A ITE emissions requirements (EU)
FCC 47 CFR Part 15 Class A emissions requirements (USA)

EMC Immunity
EN 50082-1: 1992 EMC residential, commercial and light industrial generic immunity standard.

FCC Notice
This product has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.
These limits are designed for providing reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions contained in this manual, may cause harmful interference to radio and television communications. However, there is no guarantee that interference will not occur in a particular installation.

NOTE: Connecting this device to peripheral devices that do not comply with CLASS A requirements or using an unshielded peripheral data cable could also result in harmful interference to radio or television reception. The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. To ensure that the use of this product does not contribute to interference, it is necessary to use shielded I/O cables.

CE Notice
Such a $C\epsilon$ marking is indicative that this system's devices meet the following applicable technical standards:

- EN 55022 – "Information Technology Equipment - Radio disturbance characteristics Limits and methods of measurement"
- EN 50082-1: 1992 – "Electromagnetic compatibility – Generic immunity standard Part 1:Residential, commercial, and light industry"

This product is classified for use in a typical Class A commercial environment, and is not designed or intended for use in other EMC environments. The user of this product is obliged for proper use and installation of the product and for taking all steps necessary to remove sources of interference to telecommunications or other devices.

2 Mykerinos-X Warranty Information

This product is warranted to be free of defects in materials and workmanship for a period of one year from the date of purchase. Merging Technologies, Inc. extends this Limited Warranty to the original purchaser.

In the event of a defect or failure to confirm to this Limited warranty, Merging Technologies, Inc. will repair or replace the product without charge within sixty (60) days. In order to make a claim under this limited warranty, the purchaser must notify Merging Technologies, Inc. or their representative in writing, of the product failure. In this limited warranty the customer must upon Merging Technologies, Inc. request, return the product to the place of purchase, or other local designation, for the necessary repairs to be performed. If the consumer is not satisfied with the repair, Merging Technologies, Inc. will have the option to either attempt a further repair, or refund the purchase price.

This warranty does not cover: (1) Products which have been subject to misuse, abuse, accident, physical damage, neglect, exposure to fire, water or excessive changes in the climate or temperature, or operation outside maximum rating. (2) Products on which warranty stickers or product serial numbers have been removed, altered or rendered illegible. (3) The cost of installations, removal or reinstallation. (4) Damages caused to any other products.

3 Table of Contents

4 Introduction

This document presents and describes the fourth generation Merging hardware/software solution, a PCI Express based, high performance, cost effective audio processing card named *MYKERINOS-X*.

5 Mykerinos-X Features Overview

Mykerinos-X is Merging's answer to create a leading edge high performance audio processing card solution. It builds upon over 10 years of experience designing and manufacturing PC based Audio Cards and incorporates hundreds of users feedbacks into a compact fourth generation flexible solution. Here is a quick summary of features:

- PCI Express v1.0a, full x1 PCI Express throughput
- Driver support for Windows XP
- Very cost effective
- Based on 3rd generation Philips Nexperia 32 bit floating point processing VLIW technology
- High Performance (up to > 1.2 GFlops sustained, 1600 MB/s DDR SDRAM interface, etc.)
- Support for all sampling rates from 44.1 kHz up to 192 kHz, as well as DSD and DXD.
- Open Plug-In (all C-code) architecture supporting Surround-sound and DVD formats
- Highly flexible modular I/O architecture can be tailored to user's needs by the use of dedicated daughter boards. This I/O modularity offers a unique opportunity to meet a wide range of market requirements
- Current Audio I/O daughter card options include ADAT - S/PDIF, MADI, AES/EBU, TDIF, SDIF and DUAL
- On board Sync Connector, which includes Video Sync I/O ready for HDTV and LTC reader and generator.
- 2 channel 24 bit 192 kHz on-board monitoring output, a DSD monitoring is also available.
- Very high performance card capable of high track playback (up to 64 tracks) and vast I/O capabilities (up to 64 channels)
- Multiple cards interconnected through XDTDM (eXtreme Definition Time Domain Multiplex) bus with support of up to 512 audio channels

6 Mykerinos-X Block Diagram

6.1 Mykerinos-X Block Diagram
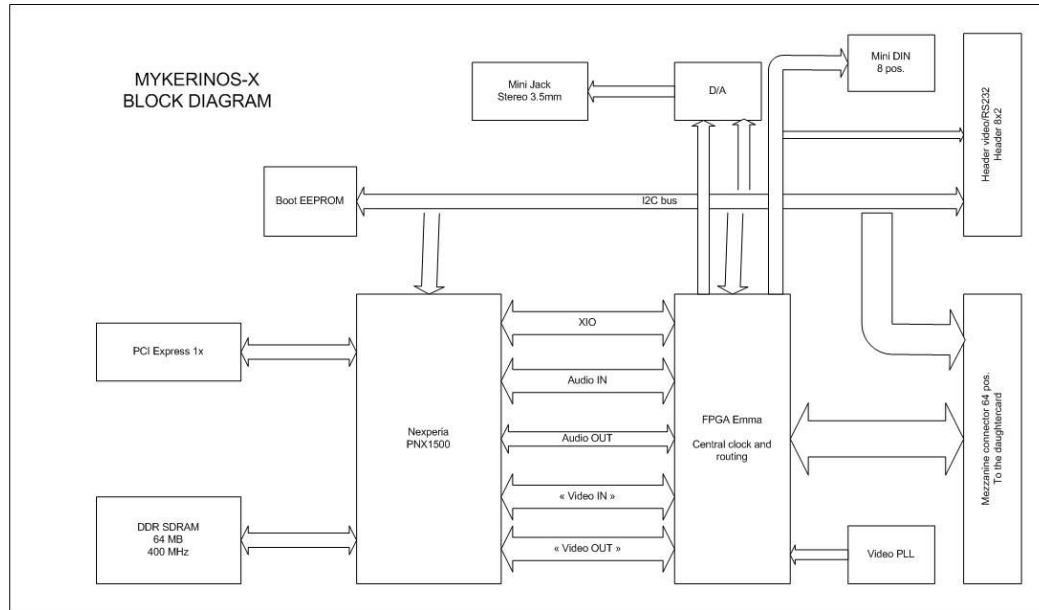
Figure 1 – Mykerinos-X Block Diagram

The Mykerinos-X board is based on the Philips Nexperia PNX1500 Chip running at 300MHz and its associated 64MB DDR SDRAM running at 400 MHz. The other peripherals are:

- 1 FPGA (Field Programmable Gate Array), used to manage the control signals
- 1 Video PLL, used to lock to any incoming Video reference such as black-burst PAL, NTSC or Tri-level HDTV
- 1 stereo 24 bit 192kHz D/A for onboard audio monitoring, also DSD capable.

Up to 64 audio channels are conveyed over the Nexperia high-speed "Video IN" and "Video OUT" buses through connector **J4** to/from the specific I/O daughter card.

6.2 Mykerinos-X On-Board Connectors and Jumpers

The connectors implemented on the Mykerinos-X board are as follows:

- **J1** - Video/TC connector 8x2, offering the same functionalities as J2 but for internal connection
- **J2** - 1 mini Din 8 pins, used to transfer Video and Timecode signals
- **J3** - 1 stereo headphone monitoring output 3.5mm mini-jack connector
- **J4** - 1 mezzanine connector 32x2, used to connect I/O daughter cards
- **J5** - header 1x4, used to connect internally a Video Reference Sync and a Video Reference Out signal

Figure 2 - Connectors layout

Refer to the "Sync Features" and "Monitoring Headphone Features" chapters for additional information.

6.3   Mykerinos-X bracket view

The following picture shows a view of the PCI bracket with the monitoring jack and the mini-Din connectors.

Figure 3 – Mykerinos-X bracket with Jack & mini-Din connectors

7 Sync Features

Provision for all Video/TC related signals (LTC, and Video Sync) is both on a 8-pin Mini-Din connector (for external connection) and on a 16-pin header (for internal connection).

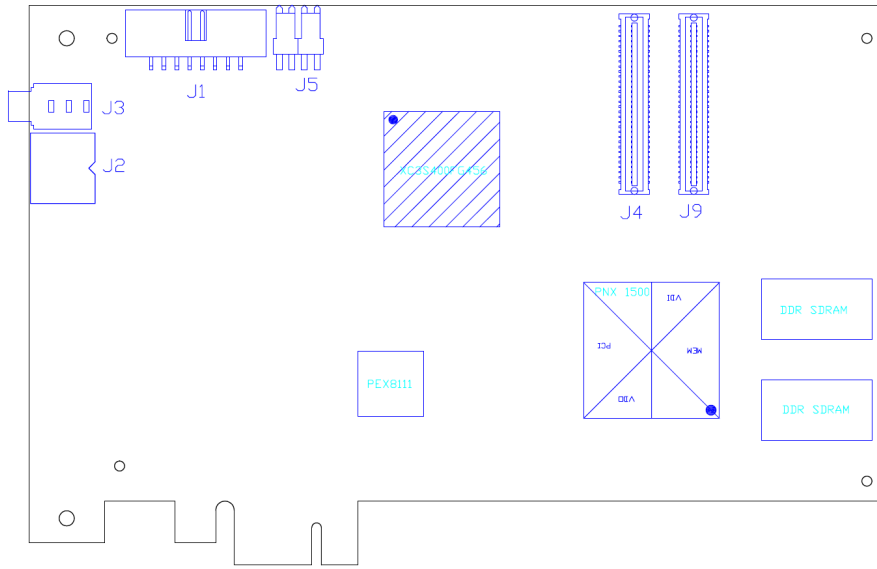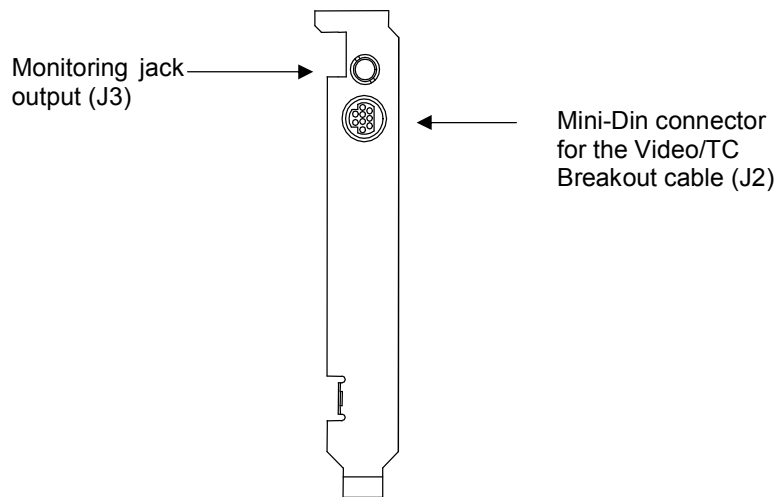The Mykerinos-X board supports all standard Video formats such as PAL/NTSC, and all Tri-level HDTV formats as a reference synchronization source. Here are the different possibilities offered by either the Video/TC bracket or breakout cable:

- NTSC/PAL Video Reference Input + HDTV reference sync source Input
- Wordclock I/O
- NTSC/PAL Video Output

- LTC (SMPTE/EBU) Timecode Input (balanced, nominal 2 Vp-p)
- LTC (SMPTE/EBU) Timecode Output (unbalanced, programmable level)

The breakout cable allows Mykerinos-X to lock to a video "house sync" or a Wordclock reference and read & generate LTC.

This interface has provision for one BNC input CVS1In, one BNC output CVS Out, one BNC input/output WCK, one XLR Female for LTC input and one XLR Male for LTC output.

This interface is quite similar in functionality to the Video/TC bracket option. The main difference is in the video loop through mode, which is not available with the breakout cable.

7.1 Signal Description

7.1.1 CVS1 IN

This input accepts a composite PAL/NTSC or Tri-level HDTV video signal that can be used by Mykerinos-X to lock its audio sampling rate to a video reference. The CVS1 input should be used for the main "house sync" or "black-burst" reference video signal.

A 75ohm termination can be applied on the input signal via software configuration.

7.1.2 WCKIO

This connector can be used, under software control, in 2 modes: Wordclock IN or Wordclock OUT.

When software configured as a WCK Input it accepts an external Wordclock reference signal between 0.2 and 5 Vp-p. When software configured as a WCK Output it provides a 5 V TTL-compatible signal with 22-Ohm output impedance.

A 75ohm termination can be applied on this signal via software configuration.

7.1.3 CVS OUT

This signal outputs the composite video signal coming from CVS1IN only.

Note: CVSOUT provides a monitoring quality video output only and is not intended to be used as a loop through "black burst" output.

7.1.4 LTC IN

LTC IN is a symmetrical input signal. It accepts an external SMPTE/EBU time code signal between 0.2 and 5 Vp-p.

7.1.5 LTC OUT

LTC OUT is an unbalanced output signal. The output voltage level can be software adjusted from 0V to 2.5V p-p.

7.2 Breakout Cable Pin-out description (J2)

The following picture describes the physical implementation of the signals on the mini Din male plug of the breakout cable.
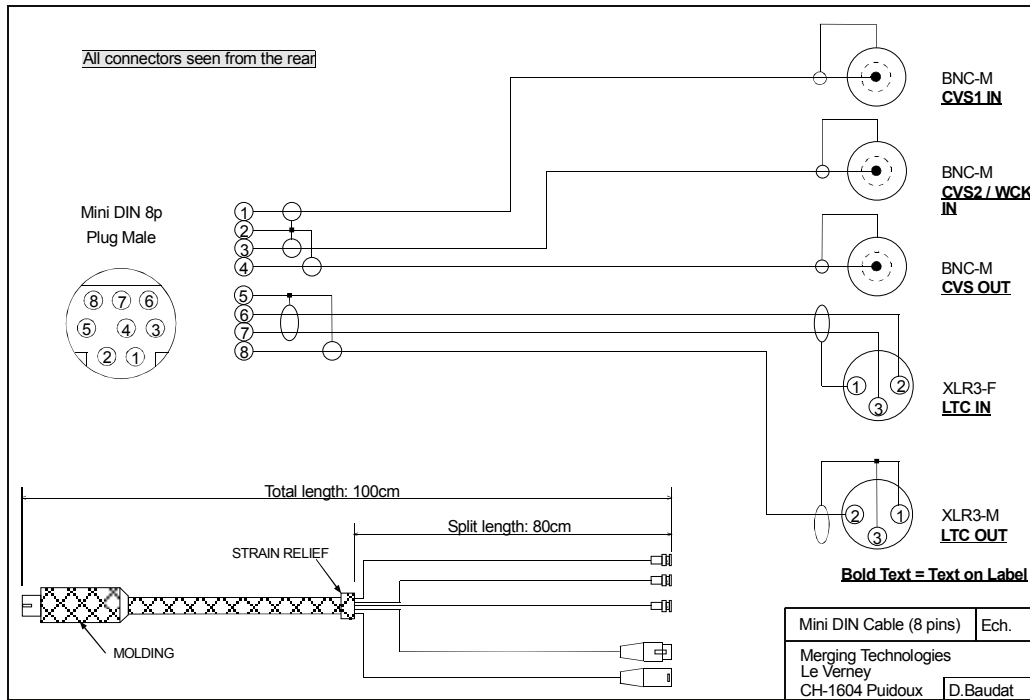
Figure 4 - Breakout Cable Pin-out

7.3 Video/TC Header Pin-out descriptions (JP2)

The pins on the Video/TC header are as described below:
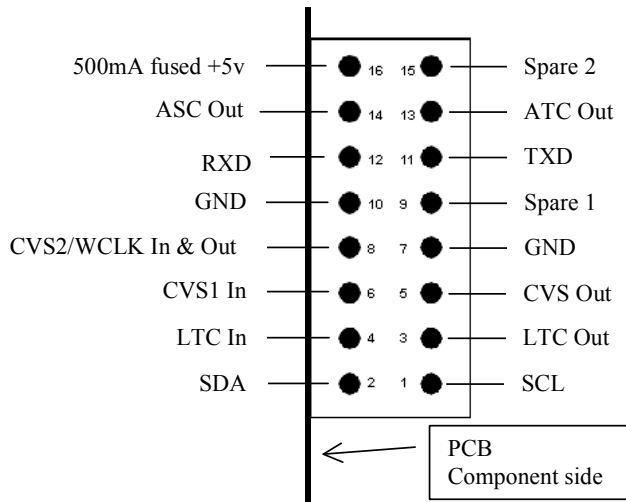
Figure 5 - Video/TC Header Pin-out

When the Video/TC Header is used, be sure to not terminate twice the CVS1IN input. Use only either the termination on the Mykerinos board (software configurable) or the one provided on the Video/TC Header.

Here is a representation of the Video/TC bracket:
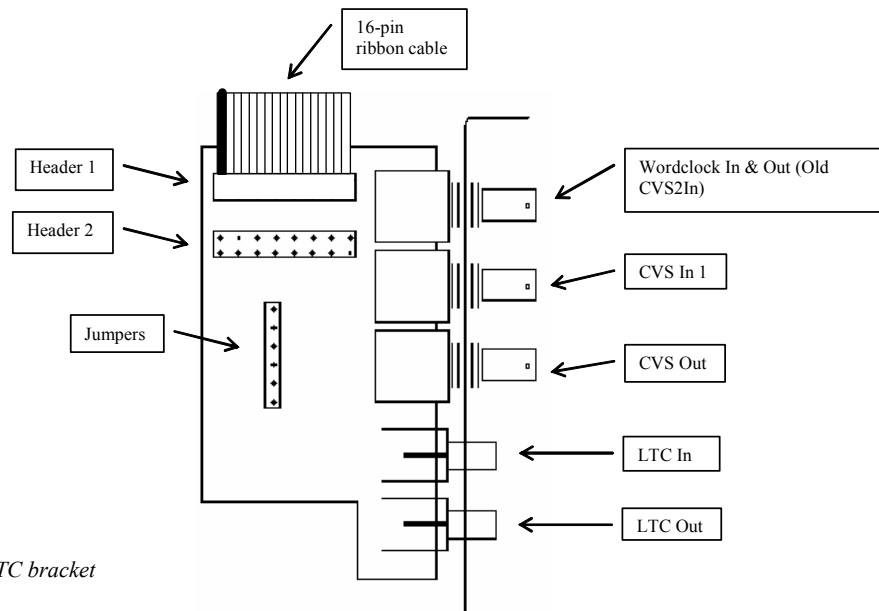
Figure 6 - Video/TC bracket

Terminology:
CVS: Composite Video Signal, NTSC, PAL or HDTV.
LTC: Longitudinal Time Code, either SMPTE or EBU.
SCL, SDA: Serial clock and Serial Data for I2C serial communication

8 Monitoring Headphone Features (J3)

The monitoring output is based on a stereo 192kHz / 24 bit D/A (unbalanced). The output level is software controlled.

When working with a DSD project, the output on the monitoring is converted directly from a DSD stream……..to complete and correct when software is done….

8.1 Monitoring output characteristics

The following graph shows the Noise floor FFT @ 48kHz .
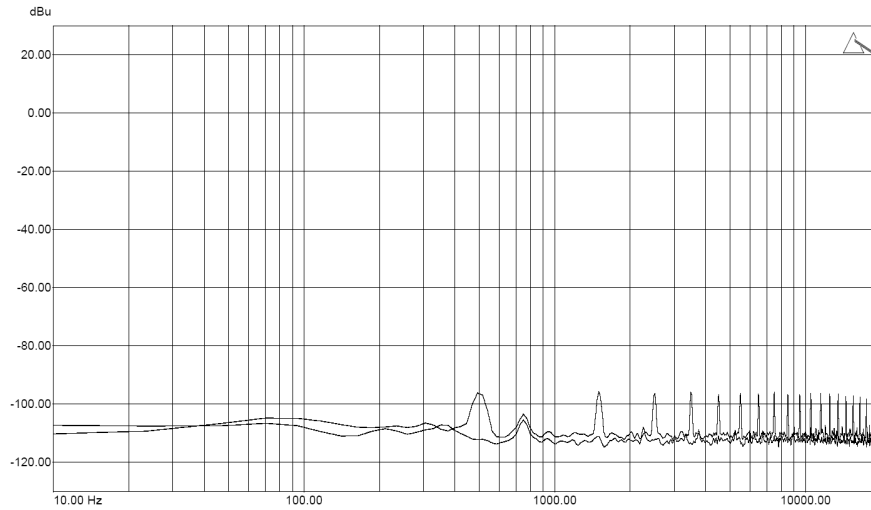
Figure 7 - Monitoring Noise spectrum measurement

9 Mykerinos-X Modular I/O Daughter cards

One core feature of Mykerinos' architecture is to break it into two parts: the portion that plugs into the PCI Express connector of the PC and the I/O daughter card that contains the physical connectors to the outside world. This allows for potentially many system applications without committing the design to any specific I/O configurations.

9.1 ADAT I/O Daughter Card

This I/O daughter card features two sets of Toslink Optical connectors each carrying up to eight channels of 24-bit Audio in the ADAT compatible format. This provides up to 16 mono channels of input and 16 channels of output up to 48kHz and up to 8 channels at 96kHz in S/MUX compatible format. One of the sets can be programmed in software to carry SPDIF (or AES-EBU) formatted signals instead of ADAT. In this mode, total I/O is limited to 2 + 8 = 10 Digital Audio channels.

HDTDM multi-board mode compatibility: When running in a HDTDM multi-board system, the ADAT I/O daughter card offers audio in ADAT format ONLY. **The SPDIF format is only available in STANDALONE (mono-board) mode.**

XDTDM multi-board mode compatibility: When running in a XDTDM multi-board system, the ADAT I/O daughter card cannot be used for input and is then only capable of 8 ADAT outputs via Optical Output A with the same 8 duplicated on Optical Output B. **No SPDIF format is supported**.

WARNING! **The ADAT Daughterboard requires modification before use with XDTDM mode. Failure to do this may result in data loss. Please contact your Merging Technologies Sales Partner to arrange a mod.**

The following figure represents the configuration of the Mykerinos bracket when plugged with an ADAT daughter card.
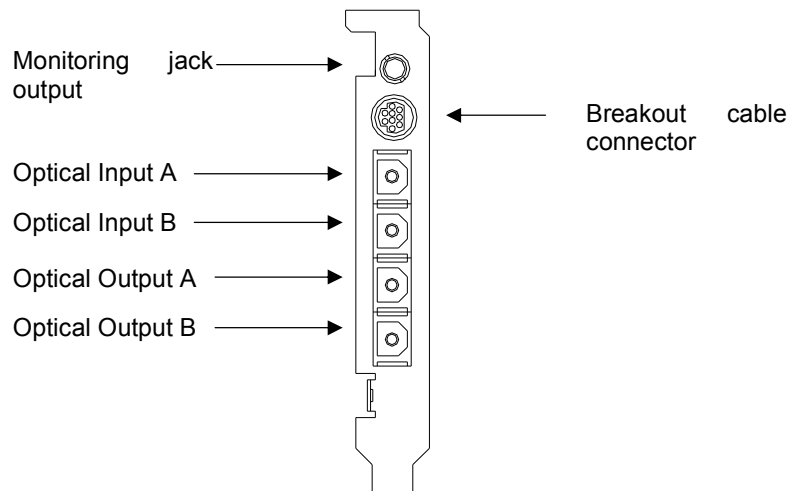
Figure 8 - Mykerinos & ADAT daughter card connectors

9.1.1 Optical I/O configuration

INPUT Modes

A/   ADAT Channel 1 – 8 (A) - ADAT Channel 9 – 16 (B)
B/   SPDIF Channel 1 – 2 (A) - ADAT Channel 9 – 16 (B) Note: ***Only available in Mono-board mode***

OUTPUT Modes

A/   ADAT Channel 1 – 8 (A) - ADAT Channel 9 – 16 (B)
B/   ADAT Channel 1 – 8 (A) - ADAT Channel 1 – 8   (B)
C/   SPDIF Channel 1 – 2 (A) - ADAT Channel 1 – 8   (B) Note: ***Only available in Mono-board mode***
D/   SPDIF Channel 1 – 2 (A) - ADAT Channel 9 – 16 (B) Note: ***Only available in Mono-board mode***

A = Optical A / B = Optical B

The optical ADAT daughter card is supplied with two 2-meter optical fiber cables. Other length (up to 10 meter) can be ordered from your authorized Merging dealer.

9.2   MADI I/O Daughter Cards - Including version II

The Mykerinos MADI Daughter board is the solution for high I/O channel count applications. It offers 56 channels of 24 bit bi-directional I/O and up to 64 channels in MADI-X (MADI Extended) format. It can be ordered either in a BNC based coaxial version or an optical duplex SC version. Both versions are fitted with a standard Wordclock BNC I/O connector, which can be software programmed as a Wordclock In or Wordclock Out signal. **The version II of the MADI daughter card is now fully multi-board compliant.**

9.2.1   Coaxial MADI version connector view

Monitoring jack output
Breakout cable connector
Coax Word clock In & Out (75ohm)
Led 1 RX status of Madi Receiver
Led 2 TX status of Madi Transmitter
Coax MADI Receiver (75ohm)
Coax MADI Transmitter (75ohm)
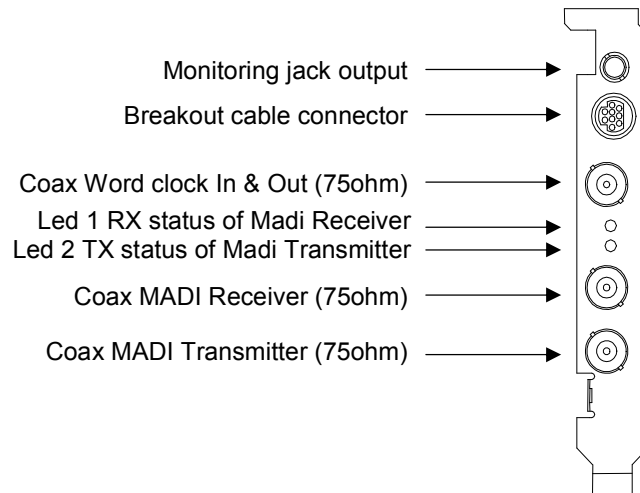
Figure 9 – Mykerinos & coaxial MADI daughter card connectors

9.2.1.1   Coaxial Cable Specifications

Merging has conducted internal tests showing reliable connection of MADI via 75 Ohms coaxial cables over distances **up to 250 meters** between Merging manufactured products.

The 50 meter length limit specified is a safe minimum assumption as per the original MADI specifications in the AES-10-1991 original standard.

Therefore, **75 m length should be no problem** in a relatively "clean" environment.

9.2.2 Optical MADI version connector view

Coax Wordclock In & Out (75ohm)

Optical MADI Receiver

Optical MADI Transmitter
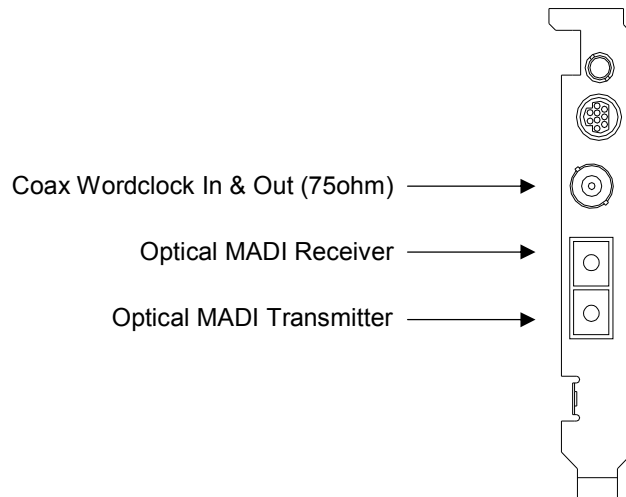
Figure 10 - Mykerinos & optical MADI daughter card connectors

9.3 AES-EBU, SDIF, TDIF I/O Daughter Card

The Mykerinos AES-EBU Daughter board offers 24 channels of digital I/O over 12 AES-EBU input and output pairs. 8 channels feature real-time Sampling Rate Conversion from 32 to 96 kHz, which may be inserted either in the input or output signal path under software control. Both "single wire" (32 to 96 kHz) and "dual wire" (64 to 192 kHz) modes are supported under software control. Connection is over three DB-25 connectors (one primary on the daughter card itself, two additional connectors on separate ribbon cables). This option includes three DB-25 to XLR cables. Special versions with either SDIF or TDIF format instead of AES-EBU may also be offered.

Rear 0
26 pin connector to
DB-25 connector

Front
DB-25 connector

Rear 1
26 pin connector to
DB-25 connector

Figure 11 - Location of the on-board connectors on the AES, SDIF & TDIF daughter cards

9.3.1 AES-EBU without SRC

- 24 channels of 24-bit digital input over 12 AES EBU pairs.
- 24 channels of 24-bit digital output over 12 AES EBU pairs.

9.3.2 AES-EBU with SRC on 8 channels

- 24 channels of 24-bit digital input over 12 AES EBU pairs.
- 24 channels of 24-bit digital output over 12 AES EBU pairs.
- 8 (out of 24) channels feature SRC (Sampling Rate Converter) up to 96 kHz either on input or on output.

9.3.3 SDIF

- 12 channels of 20-bit digital input & output over 3 SDIF cables (connected to 3 DB25).

9.3.4 TDIF

- 24 channels of 24-bit digital input & output over 3 TDIF cables (connected to 3 DB25).

The table below is a summary of the different possibilities allowed with these 4 daughter cards.

	FRONT	REAR 0	REAR 1
AES without SRC	CH 1 – 8	CH 9 – 16	CH 17 – 24
AES with SRC	CH 1 – 8	CH 9 –16	CH 17 – 24
SDIF	CH 1 – 4 (DSD only)	CH 5 – 8 (DSD only)	-
TDIF	CH 1 – 8	CH 9 – 16	CH 17 – 24

The AES with SRC provides 6 (Sony mode) or 4 (P3D mode) I/O of DSD channels through connectors Rear 0 and Rear 1. The AES without SRC provides 8 (Sony mode) or 6 (P3D mode) I/O of DSD channels through connectors Front, Rear 0 and Rear 1. The SDIF daughter card supports DSD only in both SDIF-2 and SDIF-3 format. Note that this daughter card does not use the Rear 1 connector.

The following figure represents the configuration of the Mykerinos bracket when combined with one of the AES, SDIF or TDIF daughter cards.
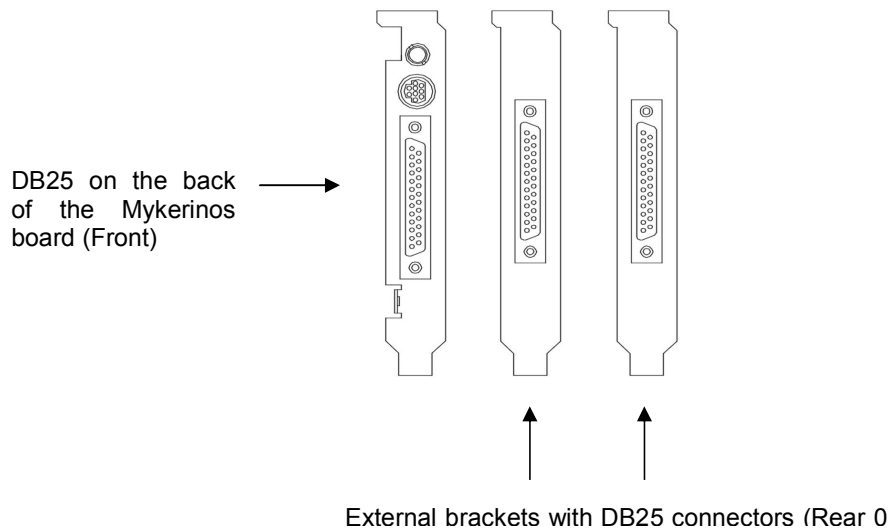

DB25 on the back of the Mykerinos board (Front)

External brackets with DB25 connectors (Rear 0

Figure 12 - Mykerinos & AES-EBU/SDIF/TDIF daughter card DB-25 connectors

9.4   DUAL Daughter Card

The Dual DC is the most cost-effective I/O daughter card for Pyramix. It is an ideal I/O solution for mixed analog/digital requirements, as encountered in Broadcast production, and Video/Film post-production environments. It allows the direct connecting of up to two electrodynamics or condenser microphones, typically for quick and easy voice-over recording.

9.4.1   Card Features

- Up to 12 inputs and 12 outputs on a single board:
  - 2 CH Analog Mic/Line inputs
  - 2 CH Analog Line inputs
  - 4 CH Analog Line outputs
  - 8 CH AES/EBU inputs
  - 8 CH AES/EBU outputs
- All audio connections are made using high-quality balanced XLR type connectors,
  - Provided by two DB-25 breakout cables.
- High quality 24 bit A/D and D/A using the latest generation in converter technology.
- 2 built-in microphone preamplifiers, with a selection MIC / LINE available on analog inputs 1 and 2.
- Built-in 48V microphone phantom power.
- Analog input and output level adjustment offering 24 dB range to accommodate all standard studio levels.
- Support for sampling rates 32 kHz, 44.1 kHz or 48 kHz.

The connection of the Dual daughter card is over two DB-25 connectors, one primary on the daughter card itself and one additional connector on a separate ribbon cable. See below:
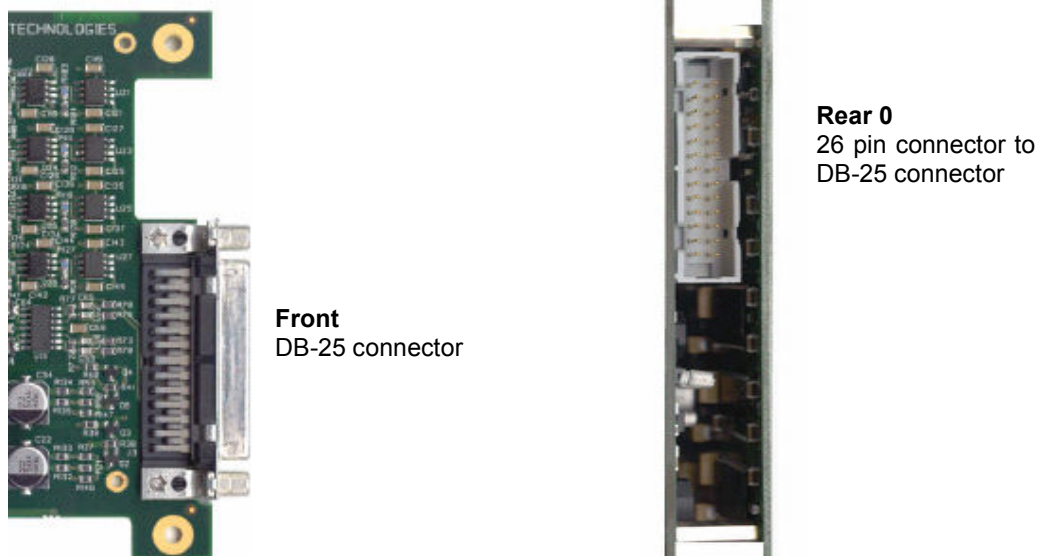

Rear 0
26 pin connector to DB-25 connector

Front
DB-25 connector

Figure 13 - Location of the on-board connectors on the DUAL daughter card

9.4.2 Front connector

This DB25 connector is for the DUAL **ANALOG** I/O breakout cable, as shown in the following drawing.
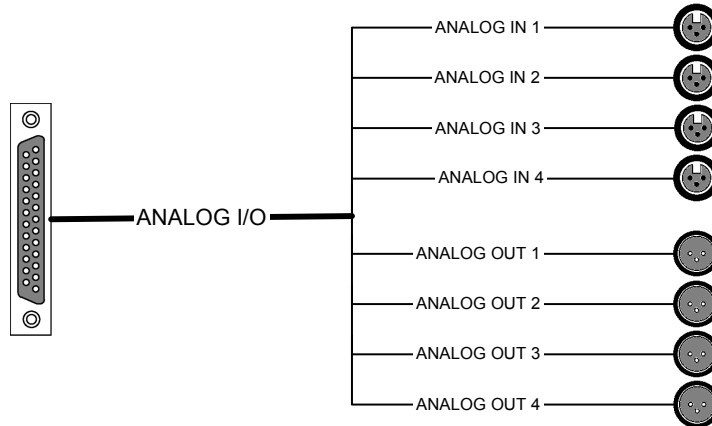
ANALOG IN 1 - 4
Any professional level balanced audio output can be connected to the analog line inputs of the DUAL Daughter card. Input levels are selectable from consumer level (–10 dBV) up to professional level (+4 dBu).

ANALOG OUT 1 - 4
Any professional level balanced audio input can be connected to the analog line outputs of the DUAL Daughter card. Output levels are selectable from consumer level (–10 dBV) up to professional level (+4 dBu).

9.4.3 Rear 0 connector

This DB25 connector is for the DUAL AES/EBU I/O breakout cable, as shown in the following drawing.
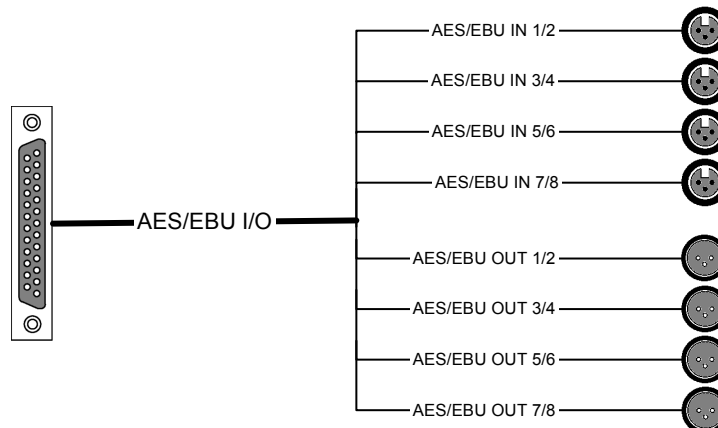
AES/EBU IN 1/2 - 7/8
Any professional level balanced digital AES/EBU audio output sources at 32, 44.1 or 48 KHz can be connected to the AES/EBU inputs of the DUAL Daughter card.

AES/EBU OUT 1/2 - 7/8
Any professional level balanced digital AES/EBU audio inputs at 32, 44.1 or 48 KHz can be connected to the AES/EBU outputs of the DUAL Daughter card.

9.5 Breakout cable connectors for AES, SDIF, TDIF and DUAL daughter cards

DB25 Male Connector (I/O)

XLR Female Connector (Inputs)

XLR Male Connector (Outputs)

9.5.1 Analog I/O breakout cable – __Only for the DUAL daughter card__

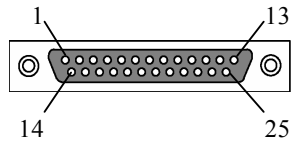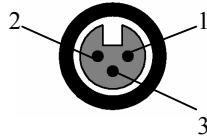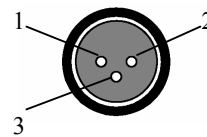| XLR Label	XLR color	Signal	XLR-F	DB25-M	XLR Label	Cable Color	Signal	XLR-M	DB25-M
ANALOG IN 1	BROWN	AGND	1	9	ANALOG OUT 1	GREEN	AGND	1	5
		AIN1+	2	13			AOUT1+	2	1
		AIN1-	3	25			AOUT1-	3	14
ANALOG IN 2	RED	AGND	1	21	ANALOG OUT 2	BLUE	AGND	1	18
		AIN2+	2	12			AOUT2+	2	2
		AIN2-	3	24			AOUT2-	3	15
ANALOG IN 3	ORANGE	AGND	1	8	ANALOG OUT 3	PURPLE	AGND	1	6
		AIN3+	2	11			AOUT3+	2	3
		AIN3-	3	23			AOUT3-	3	16
ANALOG IN 4	YELLOW	AGND	1	20	ANALOG OUT 4	GRAY	AGND	1	19
		AIN4+	2	10			AOUT4+	2	4
		AIN4-	3	22			AOUT4-	3	17

Note: The DB25 pin 7 is connected to AGND.

9.5.2 AES/EBU I/O breakout cable

| XLR Label	XLR Color	Signal	XLR-F	DB25-M	XLR Label	XLR Color	Signal	XLR-M	DB25-M
AES/EBU IN 1/2	BROWN	DGND	1	9	AES/EBU OUT 1/2	GREEN	DGND	1	5
		DIN1/2+	2	13			DOUT1/2+	2	1
		DIN1/2-	3	25			DOUT1/2-	3	14
AES/EBU IN 3/4	RED	DGND	1	21	AES/EBU OUT 3/4	BLUE	DGND	1	18
		DIN3/4+	2	12			DOUT3/4+	2	2
		DIN3/4-	3	24			DOUT3/4-	3	15
AES/EBU IN 5/6	ORANGE	DGND	1	8	AES/EBU OUT 5/6	PURPLE	DGND	1	6
		DIN5/6+	2	11			DOUT5/6+	2	3
		DIN5/6-	3	23			DOUT5/6-	3	16
AES/EBU IN 7/8	YELLOW	DGND	1	20	AES/EBU OUT 7/8	GRAY	DGND	1	19
		DIN7/8+	2	10			DOUT7/8+	2	4
		DIN7/8-	3	22			DOUT7/8-	3	17

Note: The DB25 pin 7 is connected to DGND.

10 Typical Audio Connections between DUA II & Mykerinos-X

This section will display some typical audio connection scenarios for DUA II and Mykerinos-X.

10.1 Audio for Video with SONY Digital BetaCam Users

This example is based on Video NLE & DAW users who are using the Mykerinos-X in conjunction with a DUA II audio interface and a Digital BetaCam video deck.
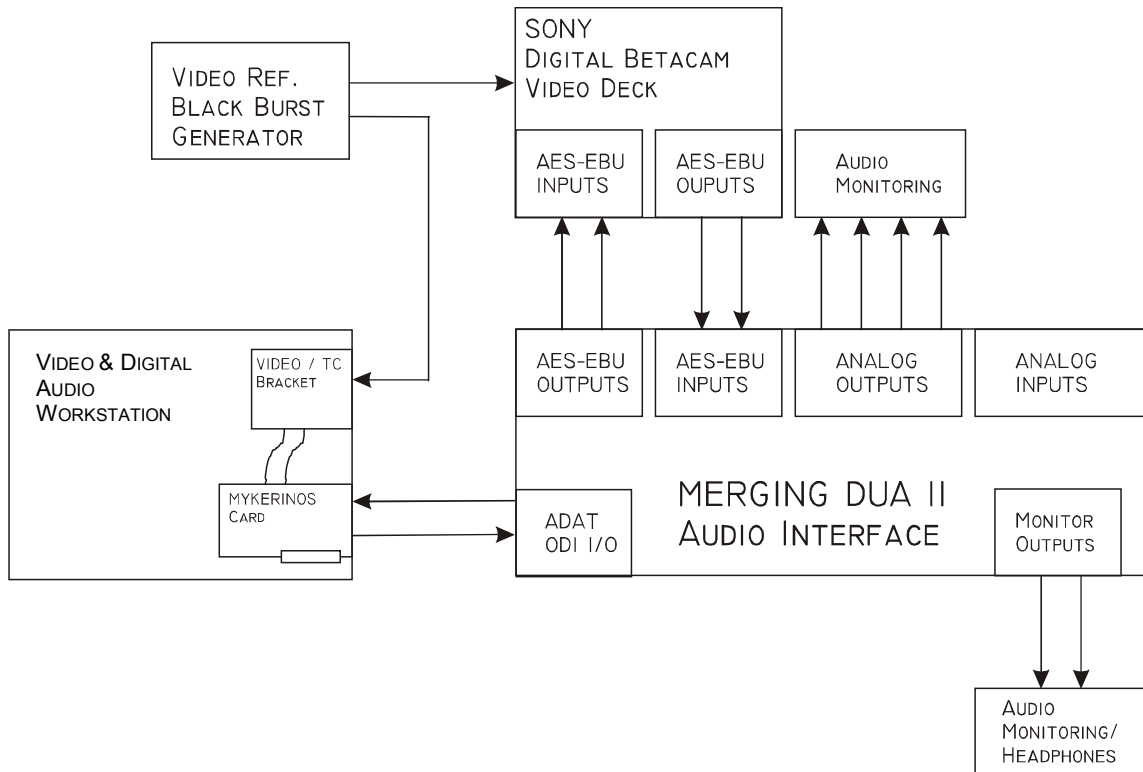
This example shows the following connections:

- The Digital BetaCam outputs are routed through the AES/EBU inputs of the DUA II to the Mykerinos-X input channels 1-4 (ADAT).
- The Mykerinos-X output channels 1-4 (ADAT) are routed through the AES/EBU outputs of the DUA II to the Digital BetaCam inputs.
- The Mykerinos-X output channels 1-4 (ADAT) are routed through the analog outputs of the DUA II to the monitoring system.
  (Alternate monitoring is provided by the front panel monitoring selection of the DUA II or the stereo monitoring of the Mykerinos-X board).
- The Mykerinos-X card (via VIDEO/TC bracket or the breakout cable - CVS1IN Input) and the Video Deck are connected to the Video Ref. generator.
  Note that each device should be connected to the video generator with its own cable.
  Using the Loop-Through to connect the different devices is not recommended.
- The DUA II is set to **ODI** sync mode and **AutoDetect SR** mode.
- The DIP switches 1-8 must be set to: **X – X – X – X – OFF – OFF – OFF – OFF.**

10.2 Audio for Video with SONY Analog BetaCam Users

This example is based on Video NLE & DAW users who are using the Mykerinos-X board in conjunction with DUA II audio interface and an Analog BetaCam video deck.
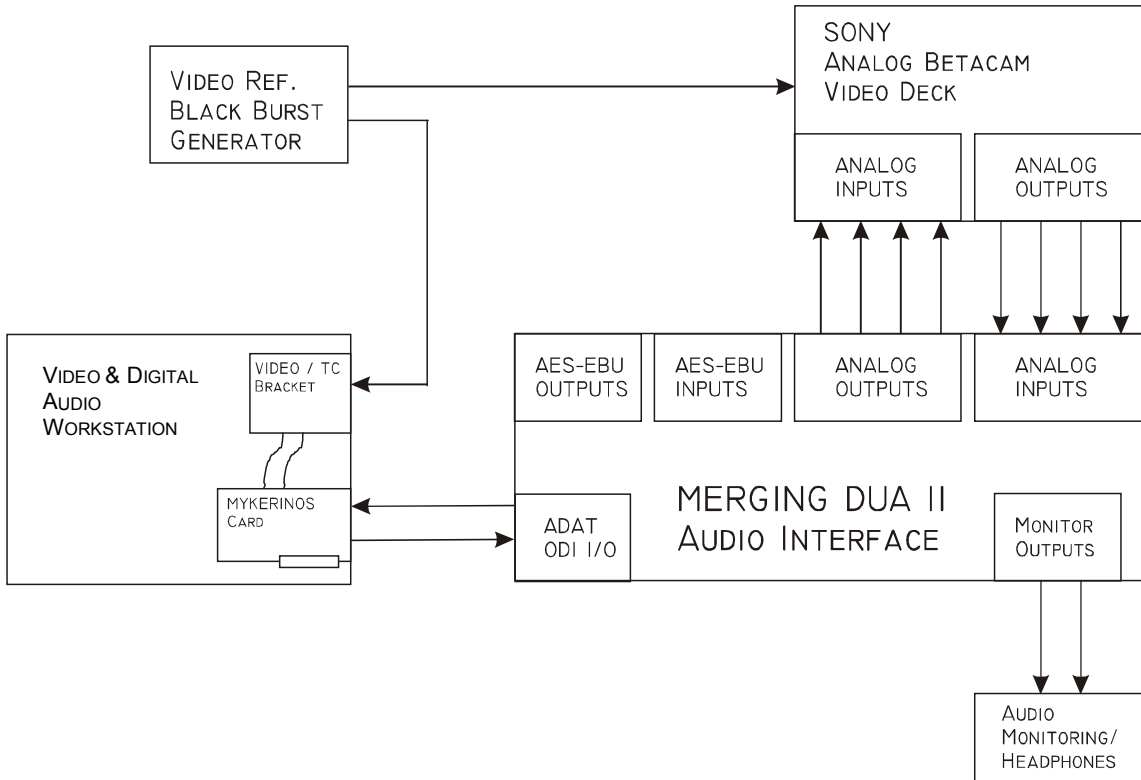

This example shows the following connections:

- The Analog BetaCam outputs are routed through the analog inputs of the DUA II to the Mykerinos-X input channels 1-4 (ADAT).
- The Mykerinos-X output channels 1-4 (ADAT) are routed through the analog outputs of the DUA II to the Analog BetaCam inputs.
- The monitoring is provided by the front panel monitoring selection of the DUA II or through the stereo monitoring of the Mykerinos-X board.
- The Mykerinos-X card (via VIDEO/TC bracket or the breakout cable - CVS1IN Input) and the Video Deck are connected to the Video Ref. generator.
  Note that each device should be connected to the video generator with its own cable.
  Using the Loop-Through to connect the different devices is not recommended.
- The DUA II is set to **ODI** sync mode and **AutoDetect SR** mode.
- The DIP switches 1-8 must be set to: **X – X – X – X – OFF – OFF – OFF – OFF.**

10.3 Merging Technologies Pyramix 4.x DAW with Surround Monitoring

This example is based on a typical Pyramix analog/digital audio studio with both types of devices and a surround monitoring system.

This example shows the following connections:

- The Mic Preamp/Mixer outputs are routed through the analog inputs of the DUA II to Pyramix input channels 1-4 (ADAT)
- The DAT/Effect/CD-Player outputs are routed through the AES/EBU inputs of the DUA II to the Pyramix input channels 5-8 (ADAT)
- The Pyramix output channels 1-4 (ADAT) are routed through the analog outputs of the DUA II to the monitoring system.
  (In this example: CH1 = Left / CH2 = Center / CH3 = Right / CH4 = Subwoofer)
- The Pyramix output channels 5-6 (ADAT) are routed through the monitor outputs of the DUA II to the monitoring system (In this example: Left = Left Surround / Right = Right Surround)
- Pyramix output channels 7-8 (ADAT) are routed through AES/EBU outputs of DUA II to the DAT/Effect.
  (In this example: It may be a simple Stereo Mix to be recorded on DAT, or a send for external effect)
- The DAT/Effect must use its AES/EBU input as its sync source.
- The DUA II is set to **ODI** sync mode, **AutoDetect SR** mode and **OUT5/6** monitoring.
- The DIP switches 1-8 must be set to: **X – X – X – X – OFF – ON – OFF – OFF.**

11 Typical Audio Connections between Sphynx & Mykerinos-X

This section will show some typical audio connection scenarios for the Sphynx Audio Interface and the Mykerinos-X board.

11.1 Audio for Video with SONY® Digital BetaCam Users

This example is based on Video NLE & DAW users who are using the Mykerinos-X board in conjunction with the Sphynx Audio Interface and a Digital BetaCam video deck.
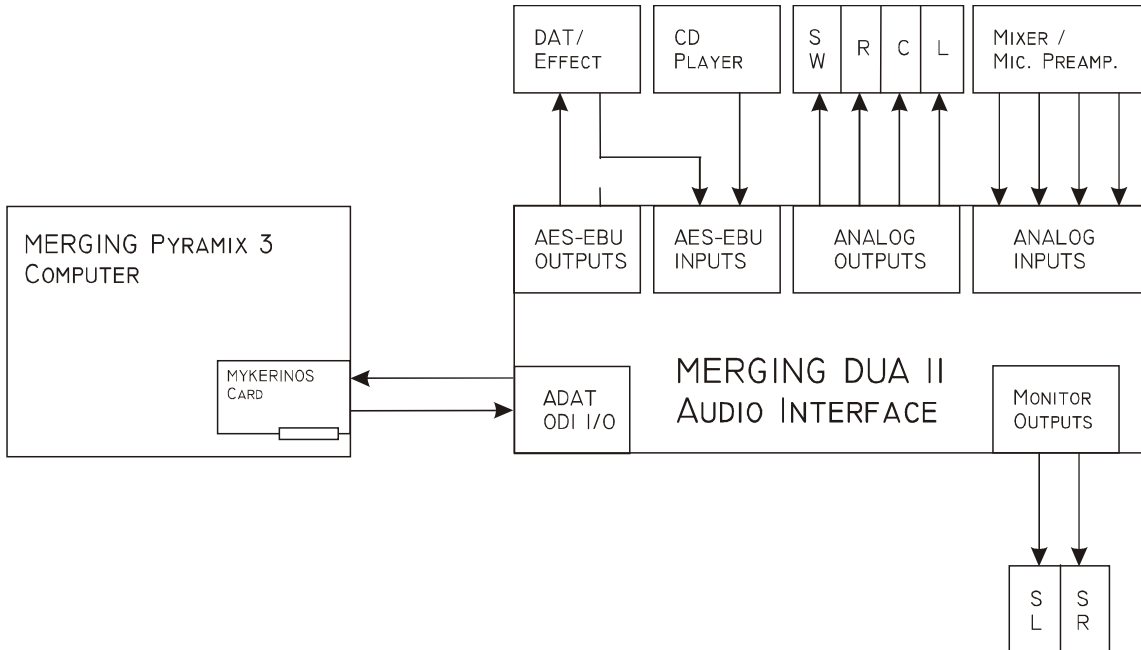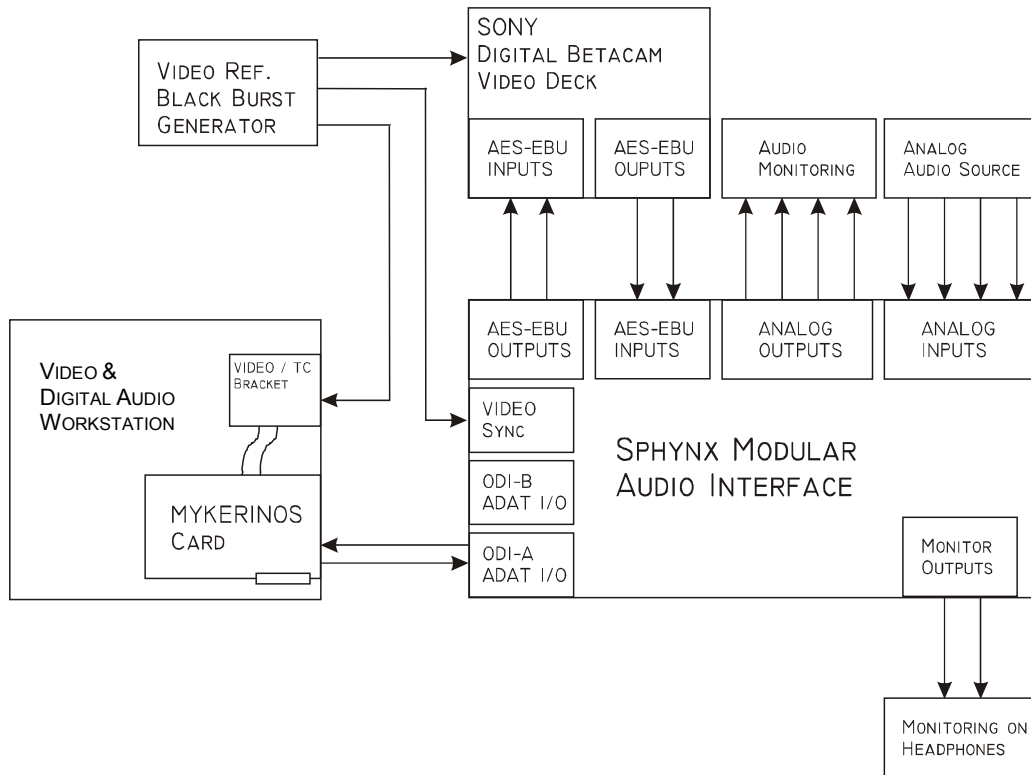

This example shows the following connections:

- Monitoring can be done through the Digital BetaCam analog outputs, the Sphynx headphones output, the Sphynx analog outputs (if analog output modules are installed) or the stereo monitoring connector of the Mykerinos-X board.
- The Sphynx contains at least 2 AES-EBU input modules (4 mono inputs) and 2 AES-EBU output modules (4 mono outputs). Analog output modules are optional in this configuration.
- All units (The Mykerinos-X board via the TC card or breakout cable CVS1IN input, Video Deck and Sphynx) are connected to the video reference generator.
  Note that any composite video source can also be used as a video reference for Sphynx.
- Note that the video loop output can be used to supply the video reference to other devices. Otherwise, a 75-Ohms terminator must be connected to the Loop output.
- The Sphynx is set to VIDEO or AES-EBU Sync Mode.

11.2 Audio for Video with SONY® Analog BetaCam Users

This example is based on Video NLE & DAW users who are using the Mykerinos-X board in conjunction with the Sphynx Audio Interface and an Analog BetaCam video deck.
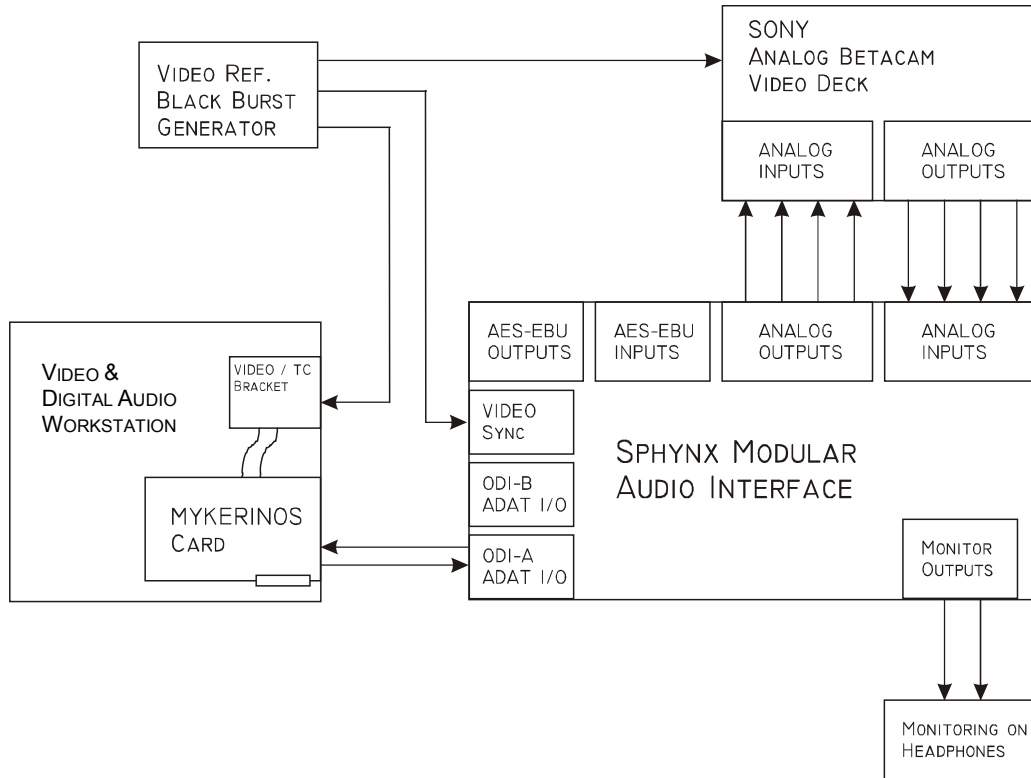

This example shows the following connections:

- The monitoring is done by the front panel Monitoring selection &output or through the stereo monitoring connector of the Mykerinos-X board.
- The Sphynx contains 2 analog input modules (4 inputs) and 2 analog output modules (4 outputs). AES/EBU output modules are optional in this configuration.
- All units (The Mykerinos-X board via the TC card or breakout cable CVS1IN input, Video Deck and Sphynx) are connected to the Video Sync generator.
  Note that any composite video source can also be used as a Video Sync reference for the Sphynx.
- Note that the Video Loop output of the Sphynx can be used to supply the video reference to other devices. Otherwise, a 75-Ohms terminator must be connected to the Loop output.
- The Sphynx is set to VIDEO Sync Mode

11.3 Merging Technologies Pyramix 4.x DAW Setup

This example is based on a typical Pyramix analog/digital audio studio with both types of devices.
This configuration allows up to 8 inputs and 8 outputs in 'x2' SR mode.
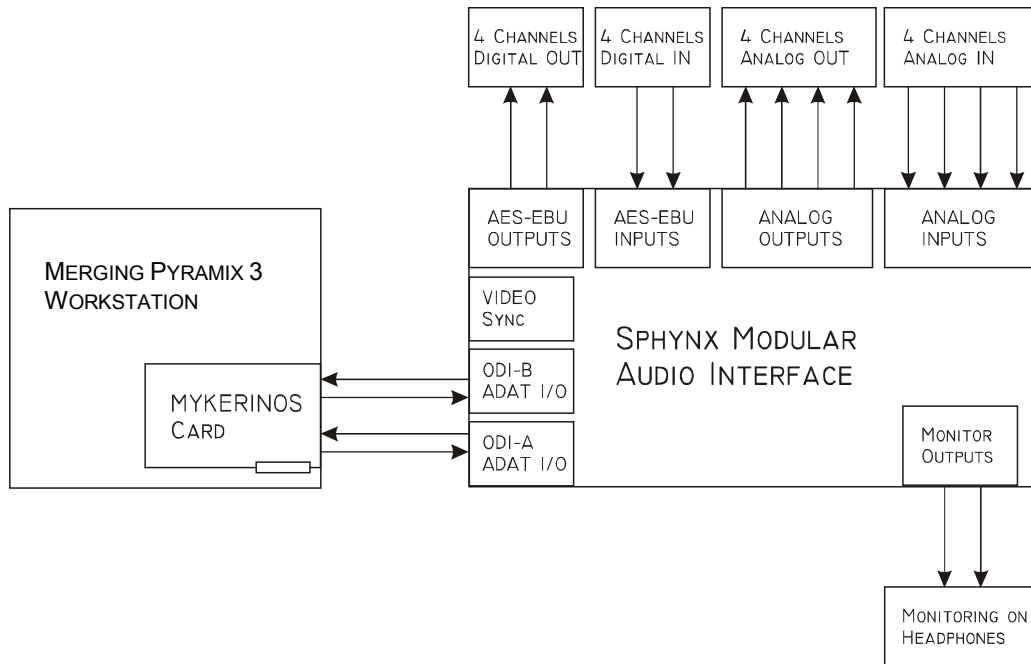

This example shows the following connections:

- All monitoring is done by the front panel monitoring selection & output and/or the analog output modules or the stereo monitoring of Mykerinos-X.
- The Sphynx is fitted with analog input modules and AES-EBU output modules.
- The Sphynx is set to INT Sync mode

12 Mykerinos-X Power Consumption

The following tables indicate the maximum power consumption from the +3.3V and +12V power rails of the PC for the Mykerinos-X itself and for the daughter cards only.

12.1 Mykerinos-X motherboard (alone)

The *Boot* and *Typical* values for the current measurements have been made from the +3.3V.

Parameter	MYK_X30		MYK_X50						Unit
	Boot	Typical	Boot	Typical					
Current	160								mA
Power	0.5								W

Parameter	Values		Unit
	+12		
Current	0.12		mA
Power	0.0014		W

12.2 ADAT daughter card

Parameter	Values				Unit
	+5	+3.3	+12	-12	
Current	50	150	na	na	mA
Power	.25	0.5	na	na	W

12.3 MADI 1 daughter card

Parameter	Values				Unit
	+5	+3.3	+12	-12	
Current	750	na	na	na	mA
Power	3.8	na	na	na	W

12.4 MADI 2 daughter card

Parameter	Values				Unit
	+5	**+3.3**	**+12**	**-12**	
Current	620	60	na	na	mA
Power	3.1	0.2	na	na	W

12.5 AES-EBU DSD (w/o SRC) daughter card

Parameter	Values				Unit
	+5	**+3.3**	**+12**	**-12**	
Current	200	150	na	na	mA
Power	1	0.5	na	na	W

12.6 AES-EBU SRC daughter card

Parameter	Values				Unit
	+5	**+3.3**	**+12**	**-12**	
Current	500	150	na	na	mA
Power	2.5	0.5	na	na	W

12.7 SDIF or TDIF daughter card

Parameter	Values				Unit
	+5	**+3.3**	**+12**	**-12**	
Current	200	150	na	na	mA
Power	1	0.5	na	na	W

12.8 DUAL (Analog – AES/EBU) daughter card

Parameter	Values				Unit
	+5	**+3.3**	**+12**	**-12**	
Current	< 200	< 100	< 300	< 100	mA
Power	~1	~0.33	~3.6	~1.2	W

13 Contacting Merging

For all general or sales inquiries:

In Europe, Africa and Asia contact our Swiss Office:

Merging Technologies SA
Le Verney
1070 Puidoux
Switzerland

Phone: +41 21 946 0444
Fax: +41 21 946 0445

In the Americas, contact our Illinois Office:

Merging Technologies
3000 Dundee Road
Suite 316
Northbrook, IL 60062
United States of America

Phone: +1 847 272 0500
Fax: +1 847 272 0597

For all documentation inquiries or suggestions for improvement: www.merging.com