



Kefren Revision C

Product Information Sheet

April 1998

Kefren ISA Audio Card

Description

The Kefren is a PC PnP (Plug&Play) card that occupies a single ISA slot. This card offers high quality, professional audio I/O and processing for Pyramix users and OEM's. It utilizes four AT&T 3210-07 floating point, 32 bit Digital Signal Processors (DSP). These DSP's allow for a wide range of very high quality real time audio processing effects and real time audio mixing. The Kefren can synchronize internally or to a wide range of external sources. The optional Video/TC bracket provides external video synchronization as well as VITC and LTC read/generate capabilities.

Feature Set

Status	Shipping
Base System Configuration	<ul style="list-style-type: none">• Card and Kefren Audio Engine• 2 ODI (ADAT / S/PDIF) inputs• 2 ODI (ADAT / S/PDIF) outputs• S/PDIF I/O (1 in, 1 out)• 4 AT&T 3210-07 DSP's
Sync Capabilities	<ul style="list-style-type: none">• Internal Crystal• Digital Audio Sources (ADAT, S/PDIF, TDIF)• Wordclock Input (with the TDIF option)• Video reference (black or composite video with the Video/TC option)
Playback Capabilities	<ul style="list-style-type: none">• 8 tracks of audio (basic sample rates)• 4 tracks of audio (HSR option)
I/O Capabilities	<ul style="list-style-type: none">• 8 channels of simultaneous live I/O
Supported Sample Rates	<ul style="list-style-type: none">• 32 kHz, 44.1 kHz and 48 kHz (Basic)• 64 kHz, 88.2 kHz and 96 kHz (HSR option)
Options	<ul style="list-style-type: none">• Video/TC option• TDIF I/O option
Notes	<ul style="list-style-type: none">• Kefren board contains no analog I/O

I/O Modes

This is a brief description of the supported digital audio formats

S/PDIF

S/PDIF (Sony/Philips digital interface format) is based on a consumer version of the AES/EBU digital audio interconnection standard. The Kefren can connect to S/PDIF devices via RCA type connectors or via a TOSLINK (Toshiba link) fiber optic interface. The S/PDIF data stream contains a stereo pair of digital audio. The S/PDIF input will also accept a AES/EBU formatted signal.

ADAT

This is a multichannel optical digital interface. It is a proprietary standard, which is used in the family of Alesis ADAT digital multitrack recorders. The ADAT data stream contains 8-channels of digital audio data through a single fiber optic cable.

TDIF

TDIF (TEAC digital interface format). This is a multichannel digital interface. It is a proprietary standard, which is used in the family of Tascam's (Teac) DA-88 digital multitrack recorders. The TDIF data stream is split among 4 signals each carrying 2-channels of digital audio through a DB-25 type sub connector.

Technical Specifications

General Information

- Four AT&T DSP 3210 running at 66 MHz, providing an aggregate peak power of 133 MFlops.
- Supports 32-bit DRAM SIMMs up to 16 MB
- Supports 32-bit SRAM SIMMS up to 1 MB
- Two VCXOs for operation at 96 kHz, 88.2 kHz, 64 kHz, 48 kHz, 44.1 kHz and 32 kHz
- One VCLO for vari-speed operation or video reference locking
- Board can run as master or slave. When in slave mode the sampling rate can be slaved to digital audio input, word sync or external video signal
- Two optical input connectors, one for ADAT optical 8 track format and one for SPDIF optical 2 track format
- Two optical output connectors switchable between ADAT optical 8 track format or SPDIF optical 2 track format
- Two coaxial RCA jacks for SPDIF stereo I/O
- Expansion connector for TDIF digital I/O
- High Input and Output audio resolution, up to 24 bits/sample (all internal processing in 32 bit float)
- Transparent access provided to SPDIF (AES-EBU) channel status bits
- LTC time code input and output
- VITC time code input and output with selectable video burn-in window
- I2C serial bus control for remote units
- All I/O address and Interrupt resources automatically selected by Windows 95 compatible Plug&Play (PnP) circuitry and firmware
- ISA 16 bit accesses concatenated to single or quad 32 bit access on the DSP bus for increased performance (up to quad burst read and posted write)
- Software programmable interrupt selection (can be chosen from up to eight interrupt levels)
- Architecture allows concurrent digital mixing and processing of live + hard disk (MO) tracks
- 8-10 simultaneous hard disk tracks supported (depending of storage device access speed)
- Full support for VCOS (AT&T) operating system

Power Consumption:

- 350 mA (Idle) / 600 mA (4 DSP running) on + 5V
- 30 mA on + 12V
- 30 mA on - 5V

ISA I/O Address Requirements

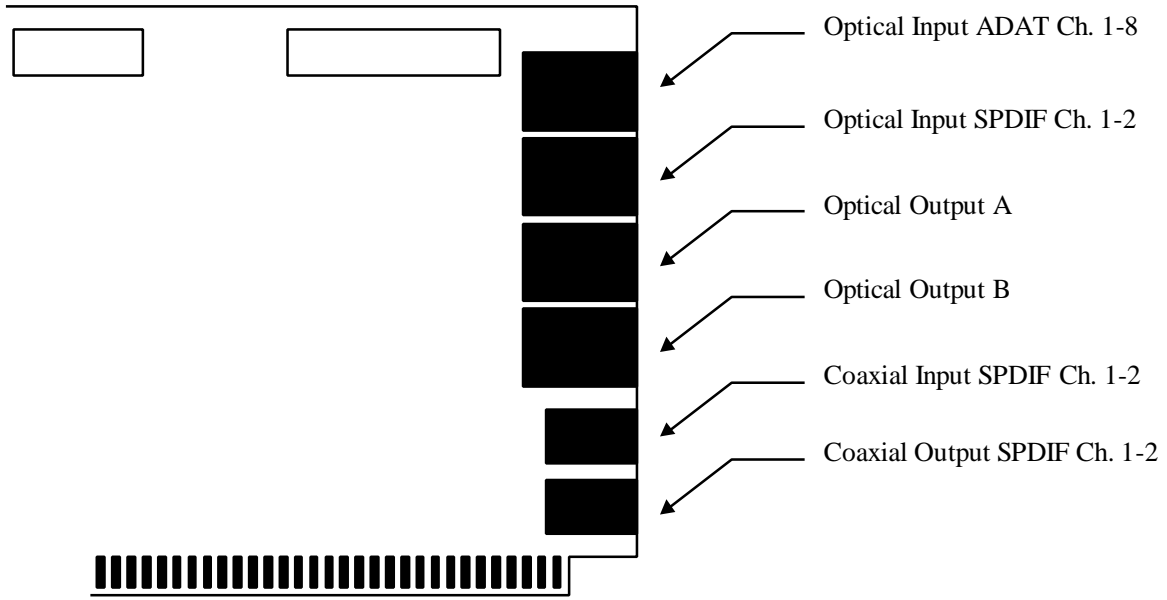
- Fully automated by PnP architecture.
- One 16 Byte contiguous I/O range location
- One 8 Byte contiguous I/O range location
- One 1 Byte I/O location

ISA Interrupt Requirements

- One interrupt level, selection is also fully automated by PnP architecture.
- Available choices are IRQ5, IRQ7, IRQ9, IRQ10, IRQ11, IRQ12, IRQ14 and IRQ15.

Digital IO

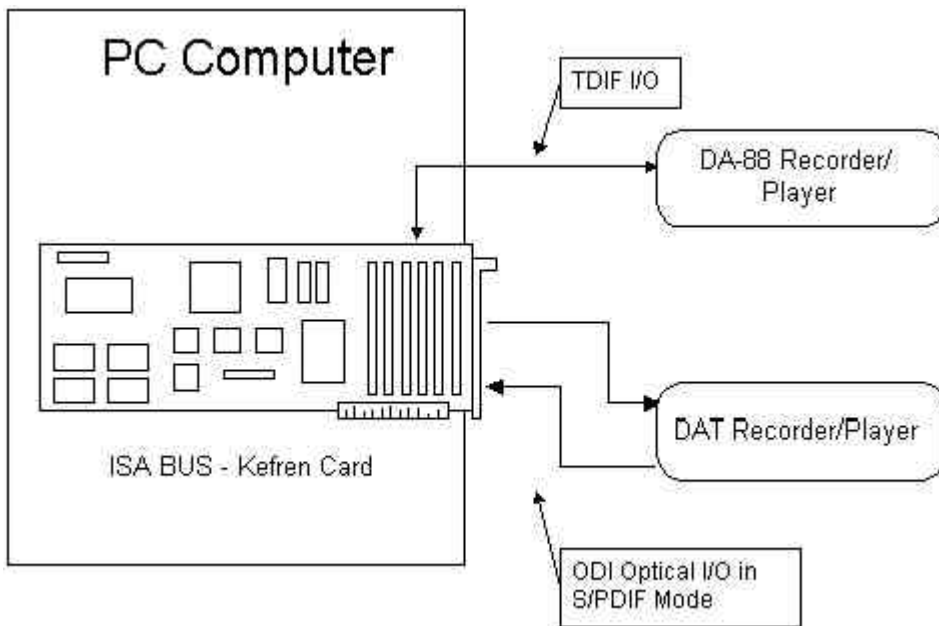
Kefren can be configured by software either for ADAT or SPDIF optical IO + TDIF.



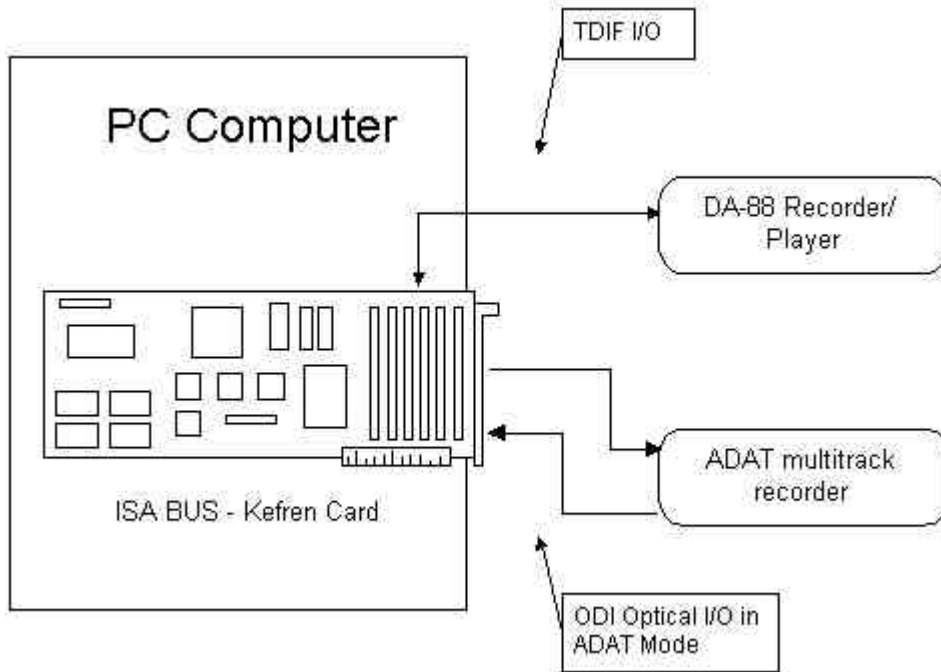
Kefren I/O connections, located on the rear card bracket

Pyramix Integration

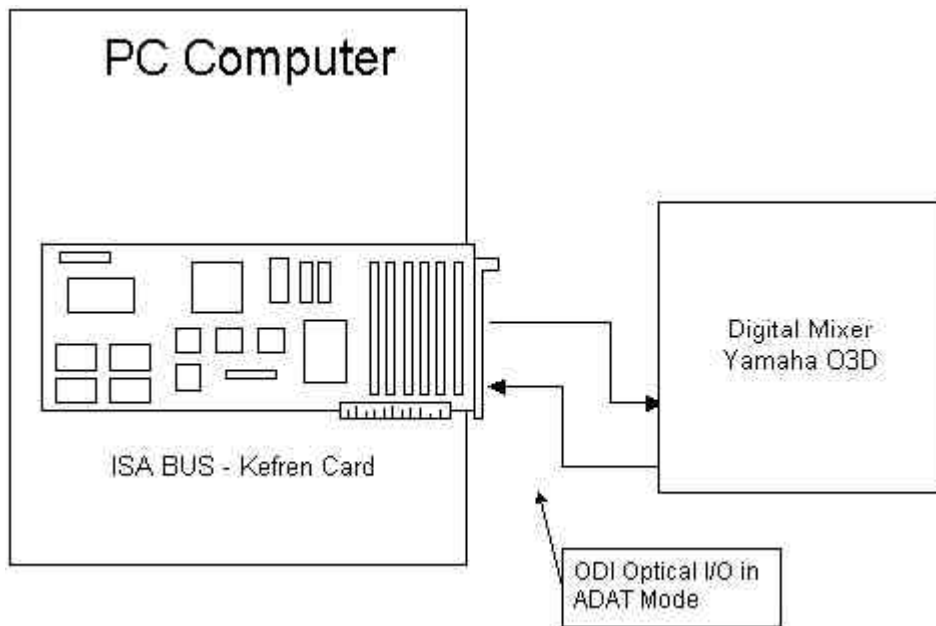
The Kefren card provides all of the audio I/O and DSP processing for the Pyramix Virtual Studio Editing software. The card contains no analog to digital converters, only industry standard digital I/O (ADAT, S/PDIF and optional TDIF). If analog sources are to be used, the card can be interfaced to any Merging or third party external Analog to digital converter, which meets the needed quality and format requirements.



The Kefren connected to a DA-x8 in TDIF mode, or a DAT recorder connected to the ODI I/O in S/PDIF mode



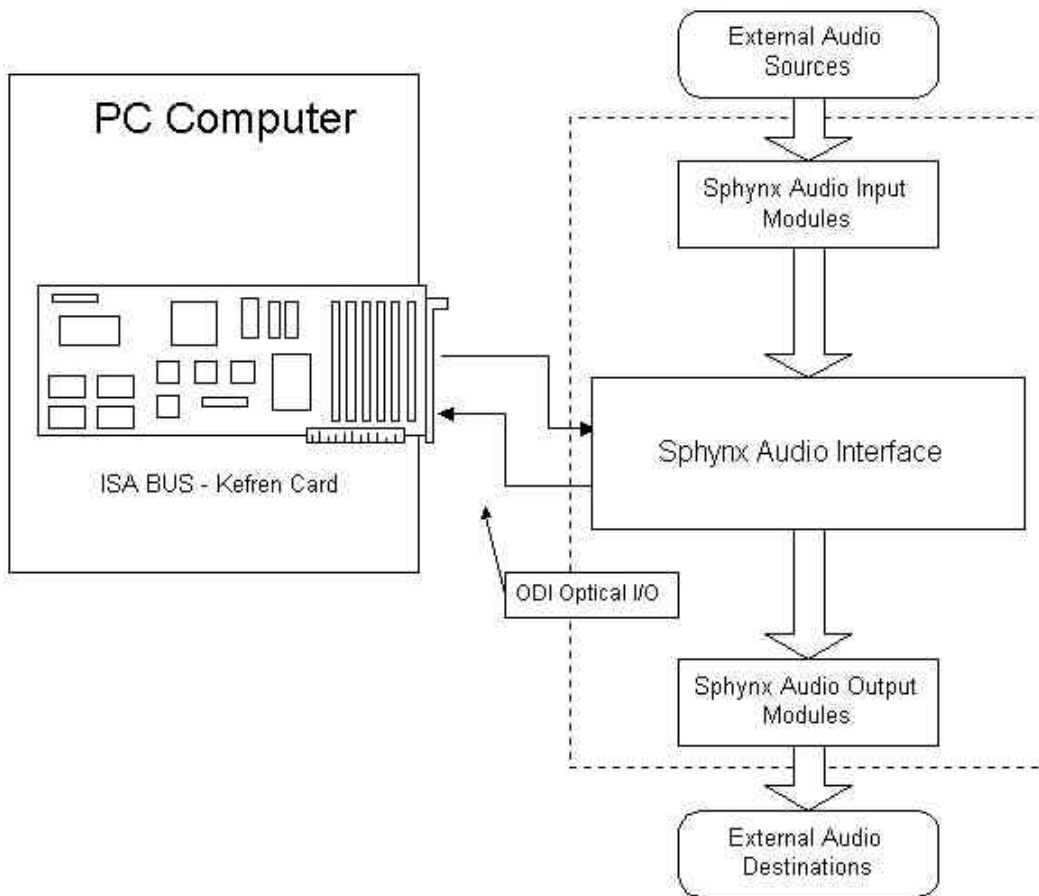
The Kefren connected to a DA-x8 in TDIF mode, or an ADAT recorder connected to the ODI I/O in ADAT mode



The Kefren connected to an external Digital Mixer (Yamaha O3D) connected to the ODI I/O in ADAT mode. Other external Mixers such as Yamaha O2R, Panasonic DA-7, with all of these fitted with one ADAT ODI interface or a Tascam TM-D8000, connected, directly with a TDIF interface are supported..

Sphynx Hardware Support

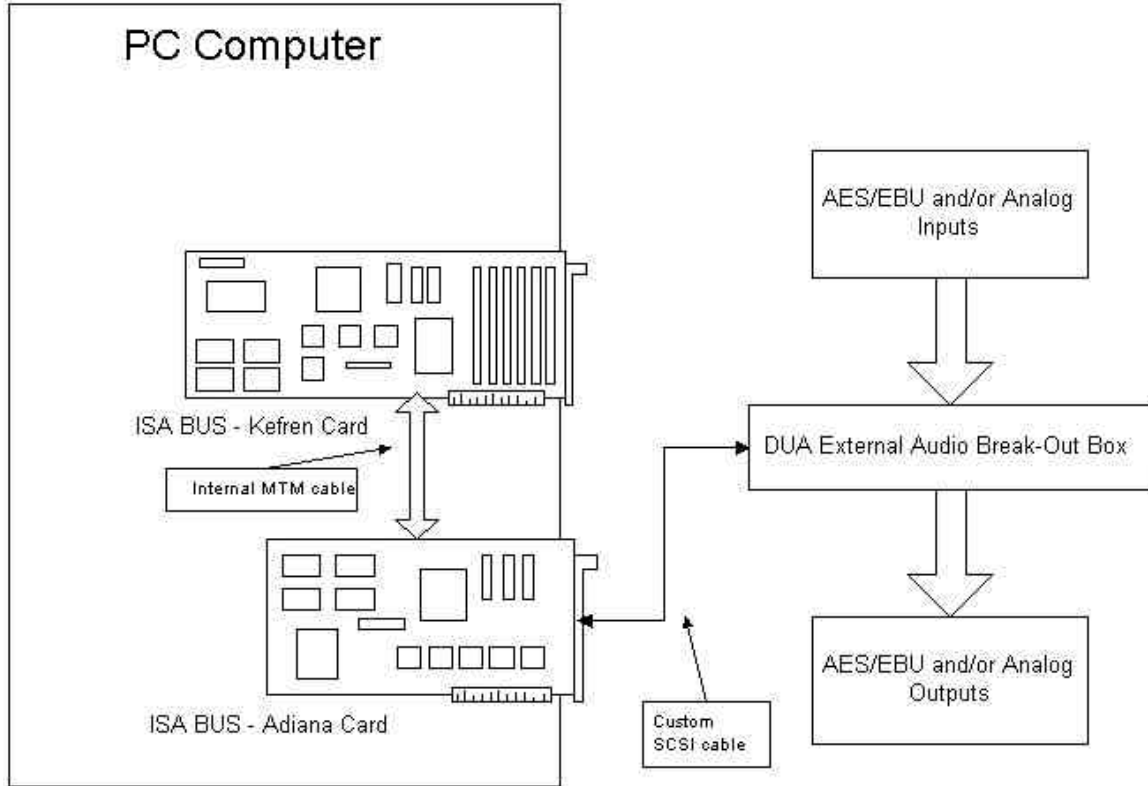
The Kefren card also supports the Merging Technologies Sphynx Modular Digital Audio interface. This provides a wide range of audio interconnectivity.



The Kefren card connected to the Sphynx Audio Interface

Adiana / Dua Hardware Support

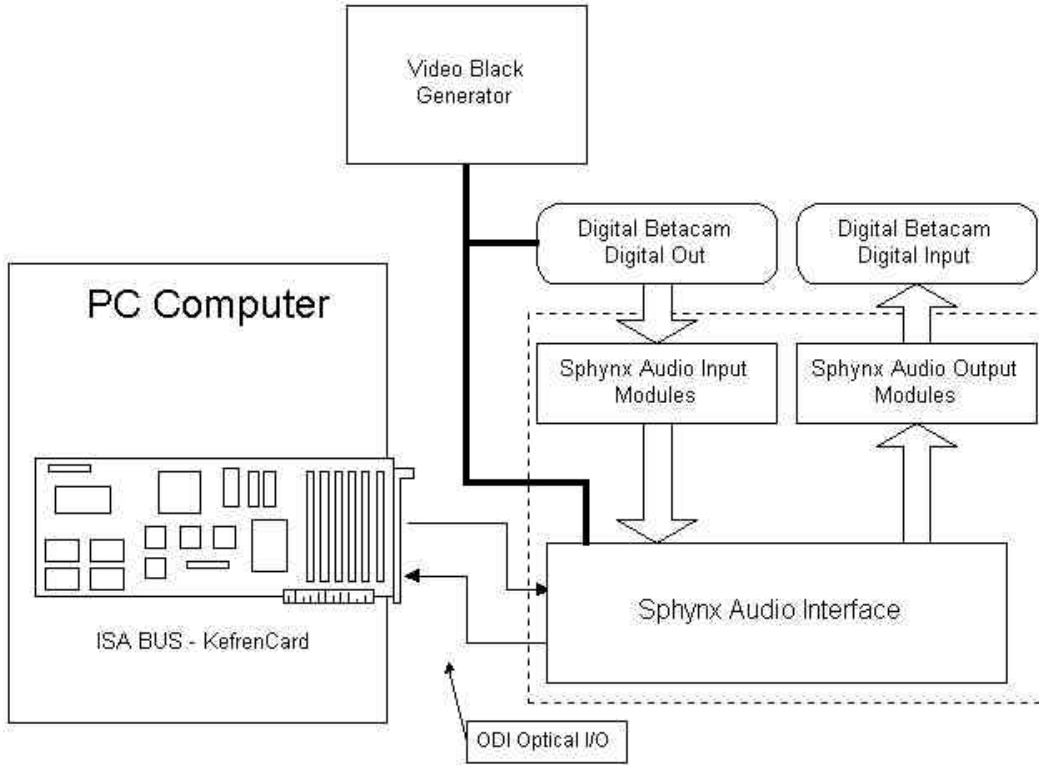
The Kefren card also supports the Merging Technologies Adiana / Dua Audio interface. This provides a cost effective solution offering both analog 20 bit and AES/EBU 24 bit interconnectivity. The MTM (Merging Time Multiplex) cable is used to link the Kefren to the Adiana card.



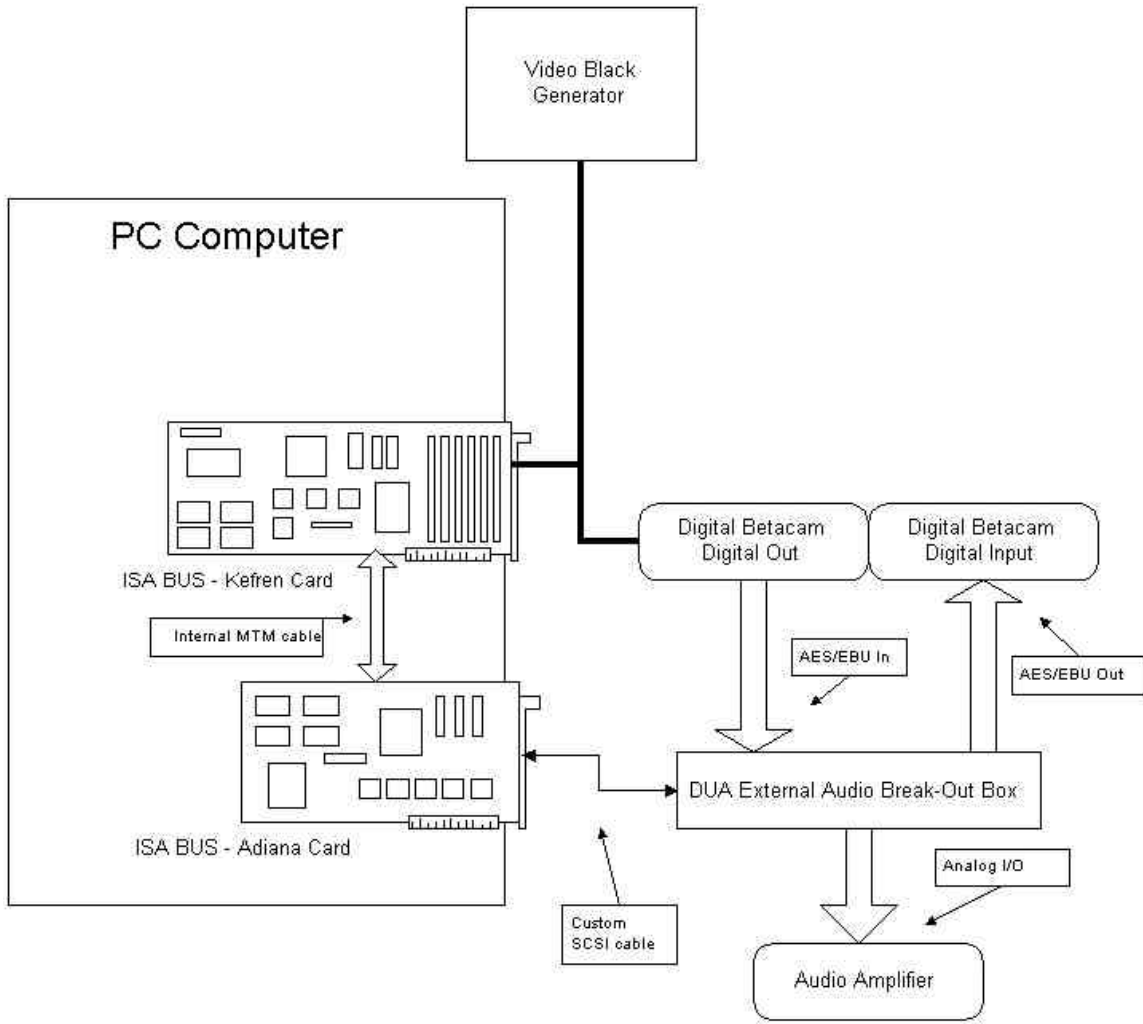
The Kefren card connected to the Adiana / Dua Audio Interface

OEM Integration

The Kefren card can also provide all of the audio I/O and DSP processing capabilities for OEM third party software. By using the Virtual Studio Software Developers Kit (VSSDK, available separately), third party developers can simply integrate the Kefren into their Windows 95/NTbased applications. This COM based API, allows for all aspects of audio playback, real time effect and mixing to be handled by the Kefren card. The video synchronization capabilities of the Kefren have made it a popular professional audio solution for third party audio/video editing software developers.



A typical OEM scenario using Digital AES/EBU input and output Sphynx Modules. All is referenced to House Sync.



A typical OEM scenario using Digital AES/EBU I/O on the DUA. All is referenced to House Sync.

Please note that all listed specifications are subject to change.