

ABSTRACT

Many of us have chosen to incorporate a surround sound system into our home entertainment centers. Unfortunately, many schools do not yet have the capability to mix in a multi-speaker environment. A working solution is to adapt a home surround system for teaching. The demonstration features a home surround system with a Digi 001 interface to produce an environment that allows surround sound mixes. The system is also portable enough to bring into the classroom occasionally for demonstrations. Also featured will be demonstrations of pieces produced for surround sound, in both electro-acoustic and popular styles, discussions of how to achieve some of the surround effects both for live performance and recorded pieces, and anecdotes of experiences of using the technology to demonstrate surround sound to students.

Adapting Home Surround Sound Systems for Teaching Purposes

Many of us have chosen to incorporate a surround sound system into our home entertainment centers. The advantages are obvious—more directional controls with speakers behind the listener and a subwoofer for low frequency effects. Unfortunately, many schools do not yet have the capability to mix in a multi-speaker environment.

Even in schools that possess a recording studio, the cost of adding three new monitors matched to the studio's near fields (speakers) plus a subwoofer, power amps, EQ for the new channels, and software and hardware upgrades, may not be justified by the teaching potential of the new equipment. Add to that the space that a surround system would entail and the amount of available space in the average classroom and we find that a permanent surround capable studio is not an option in most schools.

A working solution is to adapt a home surround system for teaching. In this demonstration, I will show how I adapted my home surround system to work with my Digi 001 (Digidesign) interface to produce an environment which, although not as elegant as a dedicated professional studio, does allow me to produce surround mixes in the comfort of my own home. The system is also portable enough to bring into the classroom occasionally for demonstrations.

The first piece to the puzzle is a surround receiver capable of interfacing with the hardware used for mixing. In order to patch the analog signal into a consumer receiver, the unit must be equipped with discreet analog inputs. I will discuss some affordable choices for amplifiers and speakers. The next challenge is connecting the receiver to the mixing interface. I will talk about the different connectors used by home and professional gear, and how the two can be interfaced.

Adapting Home Surround Sound Systems for Teaching Purposes

The next challenge is software settings. I will talk about the way I adapted two common software packages, Pro Tools LE and Digital Performer 3, for use with my system. I will also discuss encoding schemes for Dolby and DTS formats to produce portable media such as DVDs.

Finally, I will demonstrate some pieces I have produced for surround sound, in both electro-acoustic and popular styles. I will also show how I achieve some of the surround effects both for live performance and recorded pieces. I will also share my experiences of using the technology to demonstrate surround sound to students.

The system will include computer, Digi 001 interface, Marantz SR5200 Surround Amplifier, six Tannoy Protégé Nearfield Monitors (90 wats ea.), and an RCA Subwoofer (200 watts). If the venue allows, I would like to space the speakers around the audience for best surround results.

Adapting Surround Sound Systems for Teaching Purposes

Adapting Surround Sound Systems for Teaching Purposes

Cultural Crossroads: Miami 2003
ATMI/CMS/SEM Joint Meeting
October 1-5, 2003

Richard Repp, Ph.D.
Georgia Southern University

Factors

- Cost
- Adding speakers, etc
- Software and hardware upgrades
- Amount of use

Adapting home systems

- *Bring into class*
- *Bring students home*

Components

- *Computer*
- *Multichannel Audio Interface*
 - Digidesign Digi 002 or better
 - MOTU 828 or better
 - Others

Surround capable receiver

- Multiple inputs and outputs
- Marantz SR 5200, SR 880
- *Speakers and subwoofer*

Software

- Pro Tools
- Digital Performer
- Others with multichannel capability

Adapting Surround Sound Systems for Teaching Purposes

Producing media

- *Bounce to multichannel format*
- *Dolby or DTS*
 - Expensive, (\$795 Protools HD)
 - not real time
 - Macintosh DVD Studio Pro (\$495)
- *DTS Cds*

Dolby DVD

- *DVD-Audio*
 - Uncompressed PCM Multichannel
 - 24 bit 96 kHz

- DEMO