

# Bogen Makes the Grade with School Installations

# SCHOOL DISTRICTS

District-Wide Systems

## WASHINGTON COUNTY SCHOOLS

Washington County, MD



### The Challenge

- Standardize PA systems across entire school district
- Increase functionality in older communications systems
- Decrease installation and maintenance costs



### The Situation

Located near the borders of Pennsylvania and West Virginia, Washington County, Maryland is the home to over 20,000 students enrolled in 26 elementary, 7 middle, and 8 high schools as well as one special needs center. With this number of schools -- some decades old while others have just completed construction -- the communications systems were a hodgepodge of vendors, components, features, and capabilities.

### The Solution

According to Washington County Public Schools Telecommunications Network Manager David L. Munday, the school district recognized the need to standardize their communications systems to improve overall efficiency in several areas, including cost, operation, and maintenance. "When I came on board about 15 years ago, we had a mish-mosh of systems, different vendors, and the need to update," commented Munday. "We selected Bogen as our equipment provider because Bogen systems are top quality, simple, easy to operate, and we could pick up the ability to program pretty fast. So now when we do new construction, we specify Bogen intercom systems to match our technology guidelines." Currently the entire school district features Bogen intercom systems.

To install or retrofit the Bogen systems, Munday tapped Commercial Cabling & Sound, Inc. (CCSI) of Cockeysville, Maryland. Many of the schools had Bogen Multicom systems already installed that needed to be enhanced with Bogen's newer Quantum Processor Card to provide IP-based networking. "One of the things that caught my attention when Bogen introduced the Quantum Processor Card was its capability of connecting to the network, which allows us to easily make bell schedule

revisions at each school through the network and do program changes from the district office without having to have someone go out to the individual schools. That was a big plus," stated Munday.

John Hotz of Commercial Cabling & Sound, Inc. (CCSI) agrees. "The district wanted the most efficient and cost-effective way to increase paging and intercom capabilities, functionality, and most important, the ability to network the schools easily. Bogen's Quantum fit the bill perfectly. Just by retrofitting their existing Bogen Multicom 2000 systems with the Quantum Processor Card as well as using it for new installations, the district gained the ability to remotely program each school enabling them to modify paging and time zones as well as bell scheduling through the school district's network. They are now able to use the network to call another station on the remote system, place an all-call at the remote school, or do a district-wide all-call."

Another major benefit for Washington County was the ability to quickly, easily, and cost-effectively increase the size of each school's intercom system without replacing the entire system. "One of our largest high schools had a Multicom system that had maxed out on station ports. We already had space in our rack and cabinet for more stations, so by adding the Quantum card, we were able to add a large number of additional ports giving us an enormous amount of flexibility," added Munday. "It enabled us to increase our port count and step up to the latest system without having to do any kind of major 'forklift job' -- it was fast, it was simple and it gave us the ability to put schools on the network." The Multicom system allowed up to 240 stations; the Quantum system replacing it enables up to 16,960 stations per facility, with a maximum of 99 facilities.

**BOGEN**

## Product Highlights

### The Solution (cont.)

"What's nice about the Quantum Processor Card is that all you have to do within the mainframe is remove the Multicom 2000 Processor Card and then just plug in the Quantum Processor Card – you don't have to replace the system, you don't have to rewire the system\*, you just have to swap out the processor card," noted Steve Berger, Mid-Atlantic Regional Sales Manager, Bogen Communications. "Then plug the card into the network with an IP address and you now have a networked school."

That simplicity and flexibility also means significant savings for the county. "By just retrofitting with the Quantum Processor Card, we're able to save 25 to 30 percent on our costs, including 'windshield' time – the time it takes for an employee to drive out to one of these schools and do programming," said Munday.

The ability to program bell schedules remotely from the district office offers a number of benefits to both the district and the individual schools. "Often the schools have their bell schedules set annually, but then every so often they need a revision, so they have to generate a work order that goes to the district and someone has to go out there to do the work," stated Munday. "Now we

can do it remotely and immediately through the network, so we're actually increasing our customer service and getting the work done in a more efficient and timely manner at a lower cost."

Munday is excited about a number of features that come with the Quantum processor that the district has not even begun exploring yet.

### The Results

David Munday and the Washington County Public Schools give Bogen an A+. By using Bogen's Multicom 2000 Communications System upgraded with a Quantum Processor Card, the district is able to both upgrade their existing systems and accommodate new installations in schools under construction, on time and on budget.

"Bogen systems are reliable, flexible, easy to use, and cost-effective," stated Munday. "By standardizing our entire school district to Bogen Communications systems, we're saving money on system design, components, wiring, and maintenance."

### Apogee and Bogen: A Simple Solution for Pangborn Elementary

With three new schools under construction in one year, Commercial Cabling & Sound, Inc. (CCSI) had to deliver complete communications systems to all three, with tight budgets and deadlines. By selecting a Bogen comprehensive communications network, they succeeded on all counts. Bogen enabled them to deliver a turn-key system to the district, ready for use on the first day of school.

Using Bogen equipment, they were able to assemble all the electronics and cabinets for the 54-classroom Pangborn Elementary School at CCSI's facility and test them there. The entire installation went smoothly and was completed in about six months. After assembling and testing the electronics at their facility, all they had to do was install cabling, hang the speakers, put in all the telephones, then just connect the electronics rack to all the field cabling, turn the switch on, and then start to test and program.

The system headend is located in the communications distribution room. Years ago you used to have a big, bulky console in the main office with all these analog switches. Now everything is controlled digitally so everything goes through the administrative phone, from which they can do their zone-page, all-page, and access their bell distribution schedule through the web on a PC. Each room has a telephone with a keypad so the staff can communicate room-to-room and from their classrooms to all or part of the building. To make those communications loud and clear, a variety of Bogen loudspeakers were used throughout the building, including S86T725PG8W Ceiling Speakers, MB8TSL Slant-Front Metal Box Speakers, MB8TSQ Square-Front Metal Box Speakers, and SPT15A Horn Loudspeakers.

To keep school classes and events on schedule, a Bogen Master Clock System was installed that utilizes a variety of Bogen BCAL wireless analog clocks throughout the school, all synchronized by Internet time through the Web using a Bogen BCTR-200-056-1 Wireless Transmitter. All of the bells, the intercom system, and the clocks are synchronized through your computer – even something as simple as Daylight Savings Time – when your computer automatically switches over, so do all the clocks throughout the school.

In addition to the intercom system install, two separate sound systems were installed in a large, combined gymnasium and cafeteria – one for each section, separated by a mobile divider wall – with the capabilities to deliver clear, accurate sound in either part of the divided room or the entire room when it's opened up for school functions. Apogee AFI speakers and CA Series power amplifiers were selected. "Apogee speakers are enclosed in a durable, attractive case that can stand up to the abuse of a gymnasium," said Berger. "But they look really good – they don't look like a commercial speaker – and the sound is fabulous, whether it's a simple lunchtime announcement or music for a big event in the entire room."

Each system features an Apogee CA-2000 Dual-Channel Power Amplifier, Apogee DLC-24 Loudspeaker Controller, and 2 Apogee AFI-3W Loudspeakers, a Bogen CAM8PRO 8-input Mic/Line Mixer, a Bogen TP30D AM/FM Tuner and a 5-disc CD Changer. When the room is opened to its full size, the systems can be piggy-backed through the cafeteria system to act as one integrated sound system.

\*Some Administrative phones, depending on the model, may require software upgrades.



### ***Apogee Audio Products: Providing the Punch for Washington County Performances***

Nowhere is the power, accuracy, and efficiency of Bogen's Apogee line of audio products more evident than in the installation for Washington County's North Hagerstown High School. The school features the district's largest auditorium, which is in constant demand for a wide variety of events. However, according to Washington County Telecommunications Technician Larry Messer, the auditorium presented some challenges. "It's an older building with a unique ceiling configuration," says Messer. "Various acoustical paneling, lighting trusses, and other features presented some acoustical challenges."

Messer, a former contractor, had heard Apogee products previously and was impressed. "I was amazed with the sound quality of such relatively small speakers," he stated, referring to the Apogee ALA and AFI Series speakers used in the installation. As a result, a demonstration was arranged at Williamsport High School. "At first the drama teachers were skeptical – 'recorded music can make anything sound good', they said – so they asked for a real test using a vocalist singing with a music track. They, too, were amazed."

"In fact," Messer continued, "the principal, who was unaware of the demo, walked in and upon hearing the Apogee system said 'What is THAT? I want one of those'."

Messer added that the Apogee system was also impressive for its flexibility. "The North Hagerstown High auditorium is used for everything from community organization meetings to fully-staged musicals. The Apogee ALA Series speaker array used in this installation provides greater clarity, articulation and coherence than competitive speaker systems. Apogee's array design, speaker integration, and simple rigging system is ideal for challenging installations."

The auditorium-filling sound system features a line array center cluster arrangement, with 4 Apogee ALA-3W loudspeakers ideally suited for vocals in a large hall, 2 Apogee AFI-3 front-side mounted loudspeakers mounted on a hanging frame to handle high-level music, and 2 more AFI-3 speakers serve as stage monitors. Five Apogee CA-4000 Power Amplifiers were used to drive the entire system through 2 Apogee DLC24 Digital Loudspeaker Controllers.

## Equipment List

(The components listed below are typical for all Washington County Public Schools.)

1	QSPC1	Quantum Processor Card
1	MCMP	Mounting Panel for power supplies and audio program card cage
1	MC512A	5/12-volt Power Supply with MC512Y1 cable assembly
1	MC2626B	26-volt Power Supply
1	MCAPI	Audio Program Card Cage with Input Modules
1	MIC1S	Microphone Input Module
1	MAX1R	Mono AUX Input Module
1	MCRMF	Rack Mounting Circuit Card Cage
5	MCACB	Analog Cards
5	MCSC	Station Cards
5	MCRRC	Rack Relay Cards
5	MCRCA60	Ribbon Cable Assemblies
2	BPA60	Power Amplifiers, 60 watts, with RPK53 rack mounting brackets
1	MCRNGM	Universal Ring Board, Master
4	MCRNGS	Universal Ring Boards, Slave
4	MCDS4	Administrative Telephones

### Master Clock System

4	BCAL-1BS-16R-0	16" Wireless Clocks with BCAG-1500 Clock Guards
60	BCAL-1BS-12R-0	12" Wireless Clocks
4	BCAL-1BD-12R-0	12" Wireless Bi-Directional Clocks
2	BCAL-1BS-16R-0	16" Wireless Clocks
1	BCTR-200-056-1	Wireless Transmitter

### Loudspeakers

142	S86T725PG8W	Ceiling Speaker with TB8 Tile Bridge and RE84 Enclosure
1	MB8TSL	Slant-Front Metal Box Speaker
10	MB8TSQ	Square-Front Metal Box Speakers
8	SPT15A	Metal Horn Loudspeakers, 15-watt
7	AT10A	Attenuators, 10-watt

### Gymnasium & Cafeteria

2	CA-2000	Apogee Dual-Channel Power Amplifiers
2	DLC24	Apogee Digital Loudspeaker Controllers
4	AFI-3W	AFI-Series Apogee Loudspeakers
4	ALA-3W	ALA-Series Apogee Loudspeakers
2	TP30D	AM/FM Tuners with RPK47 Rack Mount Kits
2	DCM290P	5 Disc CD Changers
2	CAM8PRO	8-input Mic/Line Mixers
4	HDU250	Professional Handheld Microphones
4	MAC25	Microphone Cable Assemblies
4	SF4	Microphone Floor Stands

### Key Products



QSPC1  
Quantum  
Processor Card



CA-2000  
Apogee Dual-Channel  
Power Amplifiers



DLC24  
Apogee Digital  
Loudspeaker Controller



AFI-3  
Apogee AFI-Series  
Loudspeakers  
ALA-3  
Apogee ALA-Series Loudspeakers



TIME SYSTEMS  
Wireless Clocks



MCRNGM/S  
Ring Boards



HDU250  
Professional  
Handheld Microphones



MCDS4  
Administrative  
Telephone



SPT15A  
Horn Loudspeakers



MB8TSQ  
Square-Front Metal Box  
Speakers

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