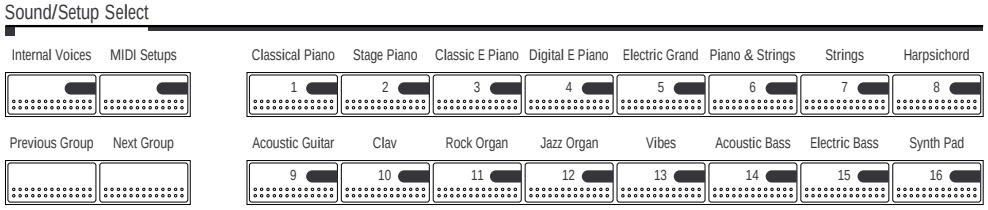
Chapter 3
Internal Voices

Internal Voices mode lets you play one sound at a time across the PC88 keyboard. The PC88 transmits on one MIDI channel, and all of its real-time controls are assigned to that channel. You might think of the Internal Voices mode as the PC88's "digital piano" mode: it is the simplest way to use the unit, especially for live performance or teaching. In MIDI Setups mode, up to four "Zones" can be active at once, but in Internal Voices mode the PC88 is operating as a single Zone. (However, in either mode, the PC88 can *receive* MIDI data on 16 channels simultaneously.) If your unit has the optional VGM board installed, the Internal Voices mode is considerably enhanced. We'll deal with those features at the end of this chapter.

When you turn the power on to the PC88, it "wakes up" in Internal Voices mode. To enter this mode from the other mode ("MIDI Setups"), press the **Internal Voices** button. Its green LED blinks until you select a sound by pressing a voice button.



Each voice button is labelled with the name of the types of sounds it provides. The display for each sound shows its name (e.g., "Classical Piano"), a number (e.g.,"000") and a "Group/Preset" number (e.g.,"A01"). For example, here's the display for the "Tack Piano" voice:

```
1:Internal Voice D02
049 Tack Piano
```

Pressing a different voice button selects another sound — for example, **Jazz Organ** brings up the voice "Jazz Organ 1", which is "A12". Pressing the **Next Group** button calls up another sound *of the same type*: "Jazz Organ 2". The Group/Preset number of this new sound is "B12", meaning you are playing sound number 12 in the B Group. Repeatedly pressing the **Next Group** button will take you through the rest of the Groups: there are more organ sounds in Groups C and D. To go back to lower-numbered groups, use the **Previous Group** button. Or, you can press **Previous Group** and **Next Group** simultaneously to return to the A group from any of the other groups.

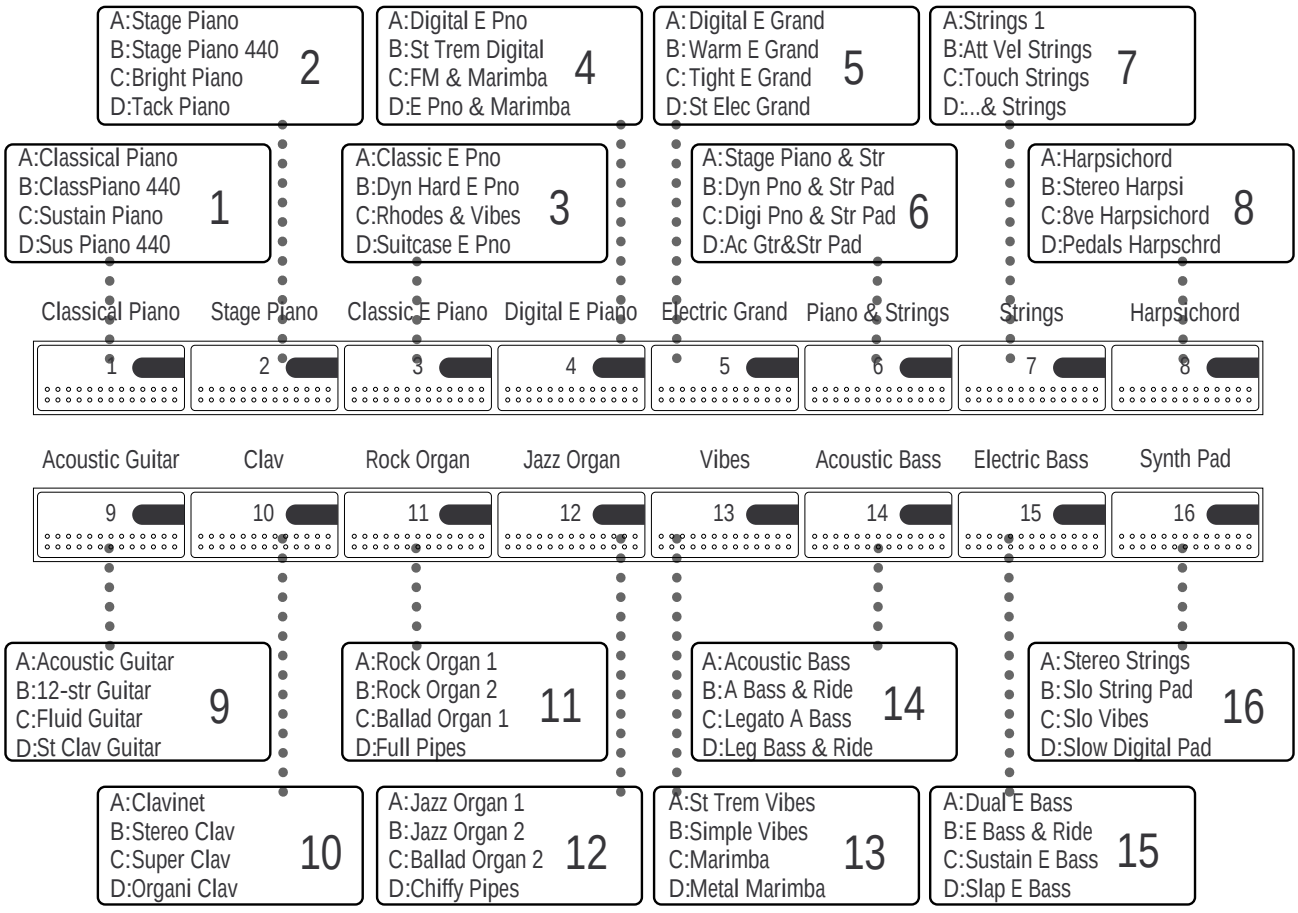
Press the voice buttons, and see what is in the different Groups associated with each one. There are 64 factory-programmed internal voices in the PC88, filling Groups A through D. The groups of voices are shown in an illustration on the following page, and are detailed in Appendix A. When you select an Internal Voice and a Group, the PC88 remembers the association between the Voice and the Group, and will go back to the same Group the next time you select that Voice. Here's an example: If you are playing Jazz Organ 2, which is in Group B, and you press **Vibes** and **Next Group** to access the Vibes-related sound in Group C (which happens to be Marimba), then go *back* to **Jazz Organ**, what will be recalled will be Jazz Organ 2, in Group B — not the organ sound in Group C. Press **Vibes** again, and Marimba in group C appears — the association of that button with that Group is remembered as well. This feature allows you to choose 16 of your favorite Internal Voices and make them all accessible with single button-pushes; you don't have to remember that the Electric Piano sound you like comes from group D, while those cool Strings are in group A, but the nice Piano & Strings is in group B, and so on.

Program Numbers and Other Ways of Selecting Voices

Internal Voices can also be called up using an external sequencer or controller that sends MIDI Program Change commands. The MIDI program number for the selected Internal Voice is shown in the bottom line of the display. There are several ways to display the program numbers, which will be discussed in the next chapter, but the default is to refer to them by the numbers 0-127.

You can also select voices using the numeric keypad, and the program numbers are important here as well. Type in the program number you wish to select (either 1, 2, or 3 digits — you don't have to use leading zeroes), and press **Enter**. The program you selected will appear in the display. If you make a mistake, press **Clear** and the numbers will reset, or if you decide you don't want to change voices after all, press **Cancel**. One more way of selecting voices is with the Alpha wheel. Turning it clockwise increments the current voice, and turning it counter-clockwise decrements it. The increment/decrement (**+** and **-**) buttons are also operational.

The table below summarizes the PC88's Internal Voices, showing the four groups available from each front panel button. Use **Previous Group** and **Next Group** to move between groups.



Customizing the Internal Voices Mode

In keeping with the "digital piano" concept of the Internal Voices mode, and in order to make the PC88 as easy as possible to use, the sounds in the Internal Voices are always going to be the same, and you cannot change them. (In Setups mode, you can do all sorts of things, as we'll soon see.) You can, however, change certain aspects of PC88 operation in Internal Voices mode.

These fall under the category of "Zone parameters", and are discussed fully in Chapter 5. They work much the same way in Internal Voices mode as in MIDI Setups mode, with some important differences. The Internal Voices mode uses only one "Zone" (Setups can use up to four), so there is only one set of Zone parameters to adjust. Even more significantly, while in Setups mode each of the 128 possible Setups has its own set of parameters, in Internal Voices mode there is a single set of parameters that applies to *all* of the Internal Voices.

Here's an example of how to change the Internal Voices' parameters. From any Internal Voice, press the **MIDI Transmit** button under **Zone Parameters**. The bottom line of the display says "MIDI Channel: 01", meaning that the PC88 is transmitting all MIDI data on channel 1. Use the alpha wheel to change the MIDI channel to "06", and then press the **Store** button. The display asks if you want to store a Setup with a particular number. Instead of pressing **Enter**, press the **Internal Voices** button. The display will change to ask if you want to store the changed parameter to the Internal Voices. Now push **Enter** (in the numeric keypad) and the new data is stored. From now on, whenever you are in Internal Voices mode, the PC88 will transmit on MIDI channel 6, until you change it again.

Let's try another example. Press the **Velocity** button under **Zone Parameters**. The display shows the velocity scale factor (Vel Scale), which is 100%: the sound responds directly and faithfully to the keyboard velocity. Hold down the **Enter** key and move any slider upwards until the display reads "200%". Now play the keyboard. The velocity response has been "expanded": the keyboard is now much more sensitive to louder notes. If you were now to press **Store**, **Internal Voices**, and **Enter**, this would become a permanent characteristic of every Internal Voice. Of course, if you don't want to do that, we won't blame you. (Reset the velocity to 100% or press **Internal Voices,** then a Sound Select button, *without* pressing **Store** to go back to the old settings.)

When you store anything to the Internal Voices, you are storing all of the current operating parameters: velocity, transposition, controller definitions, etc. There is only one storage area for Internal Voices parameters, so when you store parameters to it, all previous settings are erased. Of course, if some parameters haven't been changed, the new settings will be the same as the old. Effects do not have to be manually stored with a Voice — that happens automatically. As we've seen, each Voice *can* have its own Effects settings. If you change the effects on any Voice, the settings are remembered, so the next time you call up the Voice, the effects will be as you left them.

440-Tuned Piano Voices

Unless otherwise noted, piano programs are "beat" tuned, like an acoustic piano. Since the higher harmonics of a stretched string tend to be sharper than those of the real harmonic series, beat tuning ensures that the piano remains in tune with itself harmonically. Beat tuning is sometimes referred to as "solo" or "stretched" tuning. Some programs, though, such as "ClassPiano 440", offer straight tuning, where the fundamental of each note is tuned to A440. This allows for better mixing with other acoustic and electronic instruments. This type of tuning, therefore, is sometimes known as "ensemble" tuning.

Ride Cymbal and Metronome Click

Ride Cymbal and Metronome Click are two special voices that are layered with the "E Bass & Ride" and "A Bass & Ride" Internal Voices. Metronome click is available as the notes A0 and A#0, which happen to be the lowest two notes on the keyboard when you use the default key range and transposition. Ride cymbal is included along with the bass notes (check out Setups 1 and 2, "A Piano Trio" and "E Piano Trio" to see how useful this can be), and is also assigned to the notes that are above the range of the bass. You can get the ride cymbal by itself (without the bass sound) by setting **Note Map** to "Const" on the **Key Range** menu, then going to the **Transpose** menu and transposing above the range of the bass.

The VGM Banks

The optional VGM board adds three extra "Banks" of instruments to the PC88's internal sounds. A Bank is different from a PC88 Group. A Bank is defined by the MIDI Specification, and it can have 128 different programs, while a Group has only 16 programs. When talking about the various banks, we'll refer to the Internal Voices bank we've just been playing with as "the Internal sounds", or "Bank 0", because that is its bank number when selected over MIDI.

To look at the different banks, press the **Program** button in the Zone Parameters section, and then the left cursor button (**<<<**). The display will now show the name of the Bank on the bottom line, with its number (and the currently selected program number) above. For example:

```
Zone:1       0:049
Bank:Internal Voices
```

Use the Data Entry section to select other banks. Bank 1 is a complete set of "General MIDI" instruments, which follows the General MIDI Level 1 Specification. It provides 128 sounds, including all members of the orchestra, keyboards, guitars, basses, tuned percussion, pads, and sound effects, as well as a large set of "keyed" (one note per sound) percussion. The PC88's General MIDI bank also includes seven extra sets of percussion sounds, which are compatible with Roland's "GS" instruments. Besides the large number of useful instrument sounds, and the ability to play back General MIDI files from other sources, the General MIDI bank makes the PC88 well-suited to *development* of General MIDI scores, for publishing, educational, and multimedia applications. General MIDI is now the preferred medium of exchange for music files among musicians, on floppy disk, CD-ROM, and on-line services.

Bank 2 is "Expansion Sounds". These sounds are adapted from the Kurzweil Mark 10 series of digital pianos, and include keyboards, guitars, orchestral instruments, sound effects, and percussion. (They are not in the same order as the Mark 10 sounds, so you shouldn't try to play Mark 10 disk files with them.) In addition, the seven extra "GS" drum kits appear here as well , plus there are five additional percussion sets.

Bank 3 is called "64-Note Poly". It contains special "duplicates" of several of the sounds in the Internal bank, including piano, guitar, and vibes. Since these sounds are produced by the VGM board, and the Internal sounds are produced on the Internal board, this allows you to play the sounds with up to 64 voices of polyphony. See the "Key Range" section of Chapter 5 for details.

When you are in Internal Voices mode, you can access the sounds in the VGM banks, although not as quickly as the Internal sounds. There are several ways to do this. You can scroll through all of the programs in all of the banks using the Alpha wheel, and as you pass program 127 in one bank, the display jumps to program 0 of the next bank (the name of the new bank appears on the top line of the display). Or you can use the left cursor and Alpha wheel to set the bank, then the right cursor and Alpha wheel to select the program. Perhaps the fastest way is with the numeric keypad. When you're in the Internal Voices "play" mode (i.e., you're not editing anything), go to the numeric keypad and press the number of the bank of the VGM sound you want to play: **1**, **2**, or **3**. Then press the +/- button on the keypad, followed by the program number (one, two, or three digits — you don't need to enter leading zeroes) of the sound, and finally the **Enter** button. The bank number and name will appear on the top line of the display, and the program number and name on the bottom. The keyboard will play the selected sound.

Note, however, that in Internal Voices mode, the PC88 will not remember that a VGM sound has been selected. If you subsequently press any of the **Select** or **Group** buttons, you will jump back to the Internal Voices bank (Bank 0). VGM voices are only remembered in Setups mode.