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Arranging in the Digital World
Corey Allen

Chapter I
Definitions for the Digital Arranger

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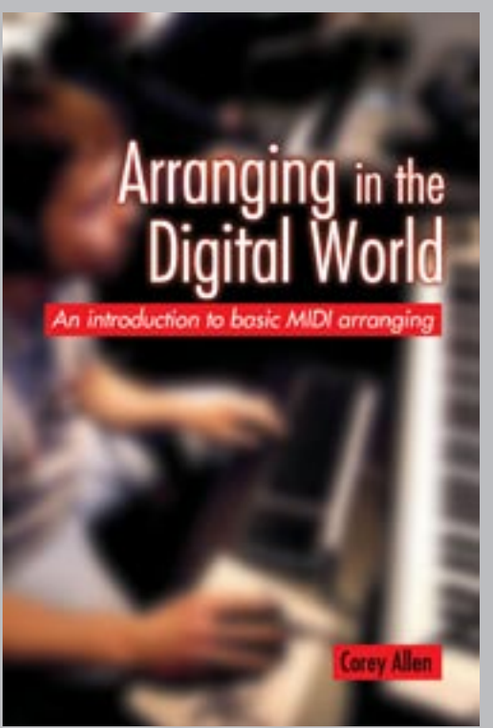

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CHAPTER I
Definitions for the Digital Arranger

For the purposes of this book, I'll define arrangement as a setting of a piece of music—typically a song—for a group of instruments or voices. The choice of just which group of instruments or voices to use is up to the arranger. Since a comprehensive study of arranging is well beyond the scope of this book, we'll concern ourselves with arranging popular music for digital instruments and concentrate on terminology and practices that pertain thereto.

Sequencer: A sequencer is a digital recording device that records a numeric sequence of events—data, NOT SOUND. A sequencer customarily takes one of three forms:

1. A piece of software used in conjunction with a computer that manages and stores the digital information you input from a keyboard or a computer.

2. A stand-alone device.

3. A component of a digital keyboard. Such keyboards are often called "workstations" or "digital ensembles" because they incorporate the ability to record various sounds on multiple tracks.

Multi-timbral keyboards used in conjunction with sequencers make it possible to produce inexpensive, professional-sounding arrangements. But they don't guarantee that your arrangement will sound "right." I will show you some practical sequencing techniques that will help enliven your digital arrangements.

There are a few demands made of the digital arranger that aren't expected of arrangers of acoustic instruments. For example, digital arrangers have to understand the way diverse instruments are actually played in order to create a believable representation of them from a keyboard. As a digital arranger, you'll also have to understand the technical abilities and limitations of the particular *software* and *hardware* you have at your disposal. You'll have to learn some basic MIDI concepts and a few production techniques that will help make your digital arrangements sound great. Let's begin by defining a few terms.

MIDI: MIDI is an acronym for Musical Instrument Digital Interface. It is simply a number system of 128 increments that places a value from 0 to 127 on every aspect of digital music. From the choice of sound you want to play to the recording process, everything has a number from 0 to 127 associated with it. MIDI allows computers to process this numeric data as any other data and send it to digital instruments that translate it into musical terms and respond appropriately.

MIDI Channel: Think of a MIDI channel as a stream in which digital information flows. You must choose the direction you want the stream to flow—from your synthesizer to your sequencer when you're recording, and from your sequencer to your synthesizer when you're listening to what you've recorded. MIDI is comprised of 16 separate channels. On a multi-timbral synthesizer, a different sound can be assigned to each MIDI channel.

Bank Select: As mentioned above, the MIDI numbering system is based on 128. But many digital instruments have hundreds of sounds to choose from. How do you select *patch number* 129 if there are only 128 MIDI numbers? The answer is that sounds, also called *programs,* can be organized in groups called banks. Banks usually contain 100 programs. So, you would choose patch number 256 by selecting bank number 2, patch number 56.

Track: Remember, a sequencer doesn't record sound, only numbers that tell a digital instrument things like what notes to play, what sounds (programs) to use, and how loud to be. This data is stored and ordered as a straight line of information called a track. In order to use your sequencer to record or play back music on your digital keyboard, each track must be assigned a specific MIDI channel. If you're using a sequencer that is built into a digital keyboard, MIDI channel assignments usually look like this: Track 1 goes to MIDI Channel 1, Track 2 goes to MIDI Channel 2, and so on. Later, we will explore some reasons why you may want to assign different tracks to different MIDI channel numbers.

General MIDI: General MIDI (GM) is a set of standards agreed upon by all of the leading digital instrument manufacturers. By standardizing a sound-set and establishing fixed technical boundaries, GM gives you the flexibility to create a sequence on one GM-compatible instrument and perform it on another. Before the GM standard, a MIDI arrangement created on one keyboard would sound completely different when played back on another. All of the musical examples on the accompanying disk are in the General MIDI format. Whether your sound source is a digital keyboard or a stand-alone tone generator, look for this emblem to determine if your equipment is General MIDI compatible:

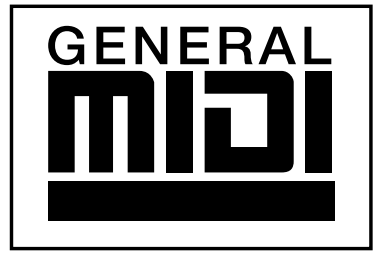


Fig. 1.1. General MIDI Logo

The General MIDI sounds and respective *program (patch)* numbers are listed below.

General MIDI Sound Set

1: GrandPno	33: WoodBass	65: SprnoSax	97: Rain
2: BritePno	34: FngrBass	66: AltoSax	98: SoundTrk
3: El.Grand	35: PickBass	67: TenorSax	99: Crystal
4: HnkyTonk	36: Fretless	68: BariSax	100: Atmosphr
5: ElPiano1	37: SlapBas1	69: Oboe	101: Bright
6: ElPiano2	38: SlapBas2	70: EnglHorn	102: Goblin
7: Harpsich	39: SynBass1	71: Bassoon	103: Echoes
8: Clavinet	40: SynBass2	72: Clarinet	104: SciFi
9: Celesta	41: Violin	73: Piccolo	105: Sitar
10: Glocken	42: Viola	74: Flute	106: Banjo
11: MusicBox	43: Cello	75: Recorder	107: Shamisen
12: Vibes	44: Contra	76: PanFlute	108: Koto
13: Marimba	45: TremStrg	77: Bottle	109: Kalimba
14: Xylophon	46: Pizzicto	78: Shakuchi	110: Bagpipe
15: TubulBel	47: Harp	79: Whistle	111: Fiddle
16: Dulcimer	48: Timpani	80: Ocarina	112: Shanai
17: DrawOrgan	49: Ensmble1	81: SquareLd	113: TnklBell
18: PercOrgn	50: Ensmble2	82: SawLd	114: Agogo
19: RockOrgn	51: SynStrg1	83: CaliopLd	115: StlDrum
20: ChrcOrgan	52: SynStrg2	84: ChiffLd	116: WoodBlok
21: ReedOrgn	53: AahChoir	85: CharanLd	117: TaikoDrm
22: Acordion	54: OohChoir	86: VoiceLd	118: MelodTom
23: Harmnica	55: SynChoir	87: FifthLd	119: SynthTom
24: TangoAcd	56: OrchHit	88: Bass&Ld	120: RevCymbl
25: NylonGtr	57: Trumpet	89: NewAgePd	121: FretNoiz
26: SteelGtr	58: Trombone	90: WarmPd	122: BrthNoiz
27: JazzGtr	59: Tuba	91: PolysynPd	123: Seashore
28: CleanGtr	60: MuteTrum	92: ChoirPd	124: Tweet
29: MuteGtr	61: FrenchHr	93: BowedPd	125: Telphone
30: Ovrdrive	62: BrasSect	94: MetalPd	126: Helicptr
31: Distortd	63: SynBras1	95: HaloPd	127: Applause
32: Harmnics	64: SynBras2	96: SweepPd	128: Gunshot

Fig. 1.2. General MIDI Sound Set

Consult your owner's manual to learn how to put your keyboard or *tone generator* into the GM mode.

Measures/Beats/Ticks: These are the units of measurement we use to identify our location in a sequence. "Measure" refers to the exact bar number. "Beat" refers to a specific beat within the bar. "Tick" is a subdivision of a single beat. Sequencers usually divide a single beat into 480 ticks. The number 480 is easily divisible into equal parts and, therefore, very convenient. For example, in 4/4 time:

480 ticks = 1 quarter note

240 ticks = 1 eighth note

160 ticks = 1 eighth-note triplet

120 ticks = 1 sixteenth note

80 ticks = 1 sixteenth-note triplet

A typical sequencer screen looks like this:

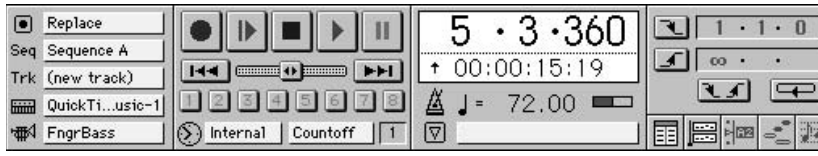


Fig. 1.3. Sequencer Screen

In this example, we're at measure 5, on beat 3, on tick 360.

CHALLENGE

What musical part of the beat does the tick 360 represent? The answer is at the end of this chapter.

Interface: A single device or a combination of software and hardware working in conjunction with one another that acts as a translator between your multi-timbral digital instrument and your sequencer.

Now that you have working definitions for some of the technical terms you'll use as a digital arranger, let's define a couple of useful musical terms.

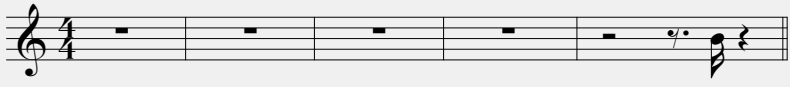
Style: The musical landscape in which you set your song. Your choice of style very often dictates the instrumentation you'll use and is influenced by many considerations, such as who your audience is and who the performer will be.

Groove: The feel with which the rhythm section will play your arrangement: i.e., a samba groove, a swing groove, or a 6/8 gospel groove.

ANSWER

The tick 360 is the fourth sixteenth note of a beat. Therefore, the musical representation of the above diagram is:

Ex. 1.1.



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