



Kronos 2

System

KRONOS System Version 3.0

Keyboard

88 key: RH3 (Real Weighted Hammer Action 3)

73 key: RH3 (Real Weighted Hammer Action 3)

61 key: Natural Touch Semi Weighted

Tone Generator

Synthesis Types

9

SGX-2: Premium Piano (Acoustic Piano)

EP-1: MDS Electric Piano (Electric Piano)

HD-1: High Definition Synthesizer (PCM)

AL-1: Analog Synthesizer (Analog Modeling)

CX-3: Tonewheel Organ (Tonewheel Organ Modeling)

STR-1: Plucked Strings (Physical Modeling)

MOD-7: Waveshaping VPM Synthesizer (VPM Synthesis)

MS-20EX: Component Modeling Technology (Analog Modeling)

PolysixEX: Component Modeling Technology (CMT Analog Modeling)

Maximum Polyphony*1*2

SGX-2: 100 voices*3

EP-1: 104 voices

HD-1: 140 voices

AL-1: 80 voices

CX-3: 200 voices

STR-1: 40 voices

MOD-7: 52 voices

MS-20EX: 40 voices

PolysixEX: 180 voices

*1: In rare cases, when a large number of processor-intensive effects are active simultaneously (for instance, more than 14 O-Verbs), polyphony may be slightly reduced.

*2: A portion of the multicore processor in KRONOS is devoted to generating voices, and a separate portion is devoted to generating effects. KRONOS dynamically allocates the voice processing power between the engines as necessary. The quoted maximum numbers of voices apply when 100% of the voice processing power is devoted to a single engine.

*3: 100 dual-stereo notes (equivalent to 400 mono voices)

Preset PCM

314 MB (ROM 1,505 Multisamples, 1,388 Drumsamples)

Build-in Expansion PCM Libraries

EXs1 - ROM Expansion

EXs2 - Concert Grand Piano

EXs3 - Brass & Woodwinds

EXs4 - Vintage Keyboards

EXs5 - ROM Expansion 2

EXs6 - SGX-1 German D Piano

EXs7 - SGX-1 Japanese C Piano

EXs8 - Rock Ambience Drums

EXs9 - Jazz Ambience Drums

EXs17 – SGX-2 Berlin D Piano

EXs18 – KORG EXs Collections

PCM RAM Capacity

Approx. 2GB *4

*4: The memory available for Sampling Mode will change based on the use of Expansion PCM libraries and User Sample Banks. Approx. 760 MB is available when shipped from the factory (When loading the file named “PRELOAD.KSC”).

Wave Sequences

598 User memory, 187 Preload

Support for stereo multisamples, synchronization of individual notes, and tempo-based settings.

SGX-2 Program

Premium Piano

Virtual Memory Technology (VMT) plays large samples directly from the internal SSD

Full key stereo sampling, Chromatically sampled at up to 12 velocity levels, no looping.

Damper resonance and mechanical noise are reproduced.

Modeled String Resonance.

Una Corda sample support

PCM

EXs6: SGX-1 German D Piano

EXs7: SGX-1 Japanese C Piano

EXs12: SGX-1 Austrian D Piano (Option Sound libraries)

8 velocity levels, no Una Corda samples

EXs17: Berlin D Piano

12 velocity levels, includes Una Corda samples

Piano Type

64 (With the factory settings, the 16 varieties of EXs12 SGX-1 Austrian D Piano do not produce sound.
The EXs12 option must be downloaded.)

Oscillator Control

Damper Resonance

Damper Noise

Mechanical Noise

Note Release

String Resonance

Una Corda

EP-1 Program

MDS Electric Piano

Tine and reed-type electric pianos powered by Multi-Dimensional Synthesis (MDS), and vintage effects.

Electric Piano Model Types

6

Tine EP I, Tine EP II, Tine EP V, Tine EP DMP, Reed EP200, Reed EP200A

Oscillator Control

Harmonic Sound Level, Attack Noise, Level, Release Noise Level, Attack Brightness, Hammer Width

Panel Control

Tine Type

Preamp Volume, Tone (Treble, Bass), Vibrate (On/Off, Intensity, Speed), Amp/Cabinet (On/Off, Drive)*5

Reed Type

Preamp Volume, Tone (Treble, Bass), Vibrate (Intensity, Speed), Amp/Cabinet (On/Off, Drive)*5

Effect Types

9

Small Phase, Orange Phase, Black Phase, Vintage Chorus, Black Chorus, EP Chorus, Vintage Flanger,

Red Comp, VOX Wah

HD-1 Program

Advanced Vector Synthesis

Control oscillator volumes and synthesis & effects parameters via the Vector Joystick and the tempo-synchronized Vector Envelope.

Structure

Single: only OSC1, Double: OSC1 and OSC2.

Double mode lets you layer two completely separate synth voices, each with their own velocity-switched oscillator, dual filter, EGs, LFOs, etc.

Drums: One drum kit, Double Drums: Two drum kits.

Oscillators

Virtual Memory Technology (VMT) plays large samples directly from the internal SSD.

8 velocity zones per oscillator, with switching, crossfades and layering

Each zone can play mono or stereo Multisamples or Wave Sequences

Filters

Two multi-mode filters per voices (low-pass, high-pass, band-pass and band-reject),

Four-mode filter routings (single, serial, parallel and 24dB mode)

Driver

Per voice non-linear driver and low boost circuit

EQ

Three bands, with sweep-able mid

Modulation

Three envelope generators, two LFOs per voice, common LFO, four key tracking generators, AMS (Alternate Modulation Source), two AMS mixers

EXi Program Common

Advanced Vector Synthesis

Control oscillator volumes and synthesis & effects parameters via the Vector Joystick and the tempo-synchronized Vector Envelope.

Modulation

Common Step Sequencer, AMS (Alternate Modulation Source), Common LFO, 2 Key Tracking Generators

EQ

Three bands, with sweep-able mid

AL-1 Program

Oscillators

Ultra-low-aliasing oscillators

OSC1, OSC2, Sub-oscillator and noise generator; ring modulation, FM and Sync

Audio Input

External audio can be processed through the ring modulator, filter, driver, amp, and EQ

Filters

Two multi-mode filters (low-pass, high-pass, band-pass and band-reject) with four types of filter routings (single, serial, parallel and 24dB mode),

Multi Filter mode (only Filter-A; modulatable mix of Low Pass, High Pass, Band Pass, and dry input, for creating a wide variety of unique filter types and effects)

Driver

Per-voice non-linear driver and low boost circuit

Modulation

Five Envelope generators, four per-voice LFOs, two AMS Mixers; Per-voice Step Sequencer.

CX-3 Program

Tonewheel Organ Modeling

Phase-synchronous tonewheels (clean and vintage modes), percussion, key click, wheel brake

EX Mode

Four additional, user-specified drawbars, and expanded percussion.

Internal Effects

Rotary speaker, vibrato/chorus, amp modeling with overdrive, 3-band EQ

Drawbar Control

Controlled via nine front-panel sliders (via Tone Adjust)

Split

Upper, Lower (even in EX mode)

Modulation

Two AMS mixers

STR-1 Program

Physically Modeled String

Includes physically modeled damping, decay, dispersion, nonlinearity, harmonics, dual pickups, and more.

Most string parameters can be controlled in realtime.

String Excitation

Three independent excitation sources can be used simultaneously: Pluck, Noise, and PCM.

16 preset “pluck” types, with modulatable width and randomization. Noise generator with saturation and dedicated low pass filter

PCM Oscillator:

KORG's ultra-low-aliasing technology, as introduced in the HD-1;

4 velocity zones per oscillator;

Uses any mono Multisamples, including ROM, EXs, User Sample Bank, or Sampling Mode.

Supports Virtual Memory.

Excitation Filter:

Dedicated 2-pole multimode filter for shaping the string excitation.

Filter can be enabled/disabled separately for each excitation source.

Low Pass, High Pass, Band Pass, and Band Reject modes

Audio Input and Feedback

Run real-time audio through the string, including feedback through effects.

Modeled feedback includes modulate-able instrument-to-amp distance and orientation.

Filters

Dual multi-mode filters per voice; Single, Serial, Parallel (with split stereo output), and 24dB (4-pole) configurations. Low Pass, High Pass, Band Pass, and Band Reject modes

Multi Filter Mode (Filter A only).

Modulatable mix of Low Pass, High Pass, Band Pass, and dry input, for creating a wide variety of unique filter types and effects

Modulation

5 Envelopes, 4 per-voice LFOs, 2 Key Track generators, String Tracking generators, 4 AMS Mixers.

MOD-7 Program

Waveshaping VPM Synthesizer

Combines Variable Phase Modulation (VPM), Waveshaping ring modulation, PCM sample playback, and subtractive synthesis; Able to convert-load SYX files.

Oscillators

6 VPM/Waveshaper/Ring Modulation Oscillators:

Phase and modulatable pitch per oscillator.

101 Waveshaper tables plus modulatable Drive and Offset.

Use as oscillators, or as Waveshapers or Ring Modulators for other signals.

PCM Oscillator:

KORG's ultra-low-aliasing technology, as introduced in the HD-1.

4 velocity zones per oscillator.

Uses any mono Multisamples, including ROM, EXs, User Sample Bank, or Sampling Mode. Supports Virtual Memory.

Audio input

Run real-time audio through the VPM Oscillators and filters.

Filters

Dual multi-mode filters per voice. (Low Pass, High Pass, Band Pass, and Band Reject modes)

Two types of filter looping (Parallel and 24 dB "4-Pole")

Multi Filter mode (Filter A only):

Modulatable mix of Low Pass, High Pass, Band Pass, and dry input, for creating a wide variety of unique filter types and effects

Patch Panel

Supports both preset algorithm (78 types) selection and free patching.

Three 2-in, 1-out mixers for scaling and merging audio, fully modulatable, with phase inversion.

Main 6-input stereo mixer, with modulatable pan and volume, plus phase inversion

Modulation

10 Envelopes, 4 per-voice LFOs, 9 Key Tracking generators, Per-voice Step Sequencer, 4 standard AMS Mixers plus 4 simple AMS Mixers.

MS-20EX Program

Oscillators

Ultra-low-aliasing oscillators; VCO1, VCO2, Ring Mod, Pink and White Noise Generator

Audio Input

Run real-time audio through the synthesis engine and ESP (External Signal Processor)

Filters

12dB/octave High Pass and Low Pass self-resonant filters

ESP section:

24dB/octave Low Cut and High Cut filters, available per voice.

Patch Panel

Patchable audio and modulation, at audio rates

Patch Points

Keyboard:

Keyboard CV Out, Keyboard Trigger Out, VCO1+VCO2 CV In, VCO2 CV In

VCO:

VCO1+VCO2 External Frequency Control In, VCO1 Out, VCO2 Out

VCF:

External Signal In, External HP Filter Cutoff Frequency Control In, External LP Filter Cutoff Frequency Control In, HPF Out, LPF In, LPF Out

VCO+VCF:

Total External Modulation In

VCA:

External Initial Gain Control In, VCA In

EG:

EG1 Envelope Signal Normal Out, EG1 Envelope Signal Reverse Out, EG1+EG2 Trigger In, EG1 Trigger In, EG2 Envelope Signal Reverse Out

MG:

Triangle Out, Rectangle Out

Noise Generator:

Pink Noise Out, White Noise Out

Sample and Hold:

Clock Trigger In, Sample Signal In, S/H Out

Modulation VCA:

Control Voltage In, Signal In, Signal Out

Manual Controller:

Control Wheel Out, Momentary Switch

ESP:

Signal In, AMP Out, BPF In, BPF Out, F-V CV Out, Envelope Out, Trigger Out

Others:

EXi Audio In, Mixer 1 In, Mixer 1 Out, Mixer 2 In, Mixer 2 Out

ESP (External Signal Processor)

Use incoming audio as a trigger and/or CV source.

Modulation

Original DAR (Delay, Attack, Release) and HADSR (Hold, Attack, Decay, Sustain, Release) EGs 1 &2,

Original MG (with MIDI sync), Sample-and- Hold, MVCA,

KRONOS: 4 additional multi-stage Envelopes, 4 additional per-voice LFOs, and 4 AMS Mixers.

PolysixEX Program

Oscillators

VCO:

Saw, Pulse, PWM

Sub Oscillator:

Off, 1 octave below, 2 octaves below

Filter

24dB (4-Pole) Octave Low Pass self-resonant filter

Effects

Integrated Polysix Chorus, Phaser, and Ensemble

Arpeggiator

Integrated MIDI-synced arpeggiator, with adjustable Range, Mode, and Latch

Modulation

Polysix: Original ADSR EG and MG (with MIDI sync).

KRONOS: 2 additional multi-stage Envelopes, 2 additional per-voice LFOs, and 4 AMS Mixers.

Combination

Number of Timbres, Master Keyboard Functionality

16 Maximum

Keyboard and velocity splits, layers, and crossfades of up to 16 Programs and/or external MIDI Devices

The tone adjust parameter function lets you modify program settings, and the master keyboard function lets you control external MIDI devices

Advanced Vector Synthesis

Control oscillator volumes and synthesis & effects parameters via the Vector Joystick and the tempo-synchronized Vector Envelope.

Drumkit

System

Assignable stereo/mono samples with 8 velocity zones per oscillator (with crossfade functions)

Number of Programs/Combinations/Drum kits

User Memory Programs

2,560 (1,792 [896 HD-1+896 EXi] come preloaded)

User Memory Combinations

1,792 (512 come preloaded)

User Memory Drum Kits

264 (78 come preloaded)

256 GM Level2 preset programs + 9 GM Level 2 drum preset programs

Set List

Number of Set Lists/Slots

128 set lists, 128 slots per set list

Each set list provides a 9-band graphic EQ, and a Tone Adjust function that allows program settings to be adjusted.

Transpose setting.

Hold Time setting of Smooth Sound Transition (SST) supported for each slot.

Sampling

System

Open Sampling System (resampling, In-Track sampling)

Bit Depth/Sampling Frequency

RAM: 16-bit/48 kHz stereo/mono sampling

DISK: 16 or 24-bit/48 kHz

Sampling Time

RAM: Depends on the amount of available PCM RAM

DISK: Maximum 80 minutes stereo (879MB: 16bit)

Sample Locations

16,000 samples/4,000 multisamples (128 indexes per multisample)

Ripping

Direct sampling (ripping) from audio CD (CD-DA)

Formats

KORG format, AKAI S1000/S3000 data (with advanced Program parameter conversion); SoundFont 2.0,

AIFF, and WAVE formats

Editing

Time Stretch, Time Slice, Crossfade Loop, and other standard editing features.

Effects

Insert Effects

12

Stereo in / stereo out

Master Effects

2

Stereo in / stereo out

Total Effects

2

Stereo in / stereo out

Timbre EQ

One 3-band EQ for each timbre/track

Effect Types

197

Modulation

Dynamic Modulation and Common LFO

Effects Control Busses

Stereo side-chaining for compressors, gates, vocoders, etc.

Effect Presets

Total 783 preset, Maximum 32 per 1 effect (Preset User)

KARMA

KARMA Modules

One module in Program mode, four modules in Combination and Sequencer modes

Generated Effects (GE)

2,048 presets, 1,536 Users (96 come Preload)

Controllers

On/Off, Latch, Chord, Assign, Module, Control, KARMA Realtime Control Sliders [1] – [8], KARMA Scene [1] – [8], KARMA Switches [1] – [8], KARMA Wave-Sequencing, GE Sub Category, Freeze Randomize, Time Signature Control, Tempo Synchronize, Auto RTC (Real Time Control) setup

Drum Track Patterns

718 preset (common with the preset patterns of the MIDI sequencer)

1,000 user patterns

Patterns created in Sequencer mode can be converted to drum track user patterns.

Trigger Mode/Sync/Zone settings can be specified.

Sequencer/HDR

Tracks

16-track MIDI sequencer + 16-track hard disk recorder + 1 master track.

Number of Songs

200 songs

Resolution

1/480

Tempo

40.00 – 300.00 (1/100 BPM resolution)

Maximum Memory

400,000 MIDI events or 300,000 audio events

MIDI Tracks

16 tracks plus the master track

718 preset/100 user patterns (per song)

18 preset/16 user template songs,

Audio Tracks

16-track playback, 4-track simultaneous recording, WAV file format 16bit/24bit.

Other Functions

RPPR (Realtime Pattern Play and Record) (1 Pattern set per song), Auto Song Setup function

General

Disk Mode

Load, save, utility, audio CD burning, audio CD playback, data filer function (save/load MIDI System Exclusive data), CD-R/RW (UDF format read/write), ISO9660 Level 1.

Controllers

Vector joystick, joystick, ribbon controller, switches 1 & 2

Control Surface:

Control Assign Switches:

Assigns the Control Surface to Timber/Track, Audio, External, Realtime Knobs/KARMA, Tone Adjust/EQ

Mixer Knobs Switch:

Assigns the Mixer Knobs to either Channel Strip or Individual Pan, Reset Control Switch, Solo Switch, Knobs 1-8, Switches 1-8(Upper Row), Switches 1-8 (Lower Row), Sliders 1-8, Master Slider

KARMA Control:

On/Off, Latch, Module Control

DRUM TRACK:

On/Off

Display

TouchView graphical user interface, 8 inch color TFT, SVGA (800x600 dots), adjustable brightness

Outputs

== Analog ==

(MAIN) L/MONO, R:

1/4" TRS Balanced

Output Impedance: 350 Ω Stereo; 175 Ω Mono (L/MONO Only),

Nominal Level: +4.0 dBu,

Maximum Level: +16.0 dBu (when load impedance is 600 Ω or greater)

MAIN VOLUME knob controls only AUDIO OUTPUT (MAIN) L/MONO and R

Individual 1-4:

1/4" TRS Balanced

Output Impedance: 350 Ω Stereo; 175 Ω Mono,

Nominal Level: +4.0 dBu,

Maximum Level: +16.0 dBu (when load impedance is 600 Ω or greater)

Headphones:

1/4" stereo phone jack, Output impedance: 33 Ω , Maximum Level: 60+60 mW (when load impedance is 33 Ω),

MAIN VOLUME knob (link with AUDIO OUTPUT (MAIN))

== Digital ==**S/P DIF:**

Optical, 24-bit, IEC60958, EIAJCP-1201, Sample Rate: 48 kHz, (the same signals as L/MONO, R)

Digital output of the same signals as AUDIO OUTPUT (MAIN) L/MONO and R

USB-B:

24-bit, Sample Rate: 48 kHz, 2 channels

(Digital output of the same signals as AUDIO OUTPUT (MAIN) L/MONO and R)

Inputs

== Analog ==**Audio Inputs 1 and 2:**

1/4" TRS Balanced

MIC/LINE input level switches, LEVEL knobs

Input Impedance: 10 k Ω

Nominal Level: LINE

+4 dBu (LEVEL knob = min), -36 dBu (LEVEL knob = max)

Nominal Level: MIC

-22 dBu (LEVEL knob = min), -62 dBu (LEVEL knob = max)

Maximum Level: LINE

+16 dBu (LEVEL knob = min), -24 dBu (LEVEL knob = max)

Maximum Level: MIC

-10 dBu (LEVEL knob = min), -50 dBu (LEVEL knob = max)

Source Impedance: 600 Ω

Signal to noise ratio: 95 dB (typical)

Dynamic range: 95 dB (typical)

Crosstalk: 95 dB, at 1 kHz (typical)

== Digital ==

S/P DIF:

Optical, 24-bit, IEC60958, EIAJCP-1201, Sample Rate: 48 kHz

USB-B:

24-bit, Sample Rate: 48 kHz, 2 channels

Control Inputs

Damper pedal (half damper supported), assignable switch, assignable pedal

MIDI

In, Out, Thru

USB*5

USB A (TYPE A) x 2, For connection to external USB devices (QWERTY keyboards, MIDI controllers, ethernet adaptors, and storage)

USB B (TYPE B) x 1, MIDI/audio interface

MIDI: 1 (16 channel) input / 1 (16 channel) output

Audio: 2 channel input / 2 channel output

*5 USB high-speed ports (supports 480Mbps)

Disk Drives

60 GB SSD (2.5")

Optional installation of second internal SSD

Power Consumption

60W

Dimensions

(W x D x H)

61 key: 1,040 x 364 x 134 mm / 40.94" x 14.33" x 5.28"

73 key: 1,221 x 371 x 148 mm / 48.07" x 14.61" x 5.83"

88 key: 1,443 x 371 x 148 mm / 56.42" x 14.61" x 5.83"

Weight

61 key: 14.3 kg / 31.53 lbs.

73 key: 21.1 kg / 46.52 lbs.

88 key: 24.1 kg / 53.13 lbs.

Accessories

AC cord, Quick Start Guide, Accessory DVD Discs 1-3 (DVDs include KRONOS Operation Guide, Parameter Guide, and Voice Name List PDF files; Video Manual; KORG USB-MIDI Driver; System Restore Data, etc.)

Principal Specifications

Frequency Response

20Hz-22kHz, +/-1.0dB, 10k Ω load

THD+N

20Hz-22kHz, 0.01%, 10k Ω load (typical)

S/N

95dB (typical)

Dynamic Range

95dB (typical)

Crosstalk

95dB, at 1kHz (typical)

* All product, company, and standard names are trademarks or registered trademarks of their respective holders.

* Appearance and specifications of products are subject to change without notice.

* The color of the actual instrument may differ slightly from the image shown here.

* Since natural wood is used in the side panels of this instrument, there will be individual differences in the grain and figuration of the wood.

KRONO