

ProtoPlasm TSM Pro Synthesizer

The Next Generation Pad & Texture Synthesizer by H.G. Fortune



One of the special features of this synthesizer is a very easy to handle modulation-system with 8 LFO/S&H-outputs plus Transition system and Super-Modulation. There are even patternlike LFO-waveforms as modsources so You can do quite amazing and complex modulations with only very few settings. Basically this synthesizer is best suited for highly vivid pads and textures but you can also do standard synth sounds like bass, leads etc. More than 1100 patches (still patchcompatible to prior versions) included: see Appendix.

The basic features are:

three digital PCM-wave oscillators powered by **150** (96 in free version) **different waveforms** of enhanced quality
each oscillator's level can be modulated by different sources

new: Super Modulation for osc. and both filters

new: Filter-FM for both filters with adjustable sources

new: Shape function for S&H seed source

adopted Transition System with three modes

one LP filter (24db Lowpass) with adjustable Boost and ADSR EG

one HP filter (12db Hipass) with adjustable Boost and ADSR EG

two shapeable LFO with patternlike waveforms (bpm-synced)

one shapeable standard LFO (bpm-synced)

one shapeable Sample & Hold with pattern (bpm-synced)

each LFO and S&H provide an additional Mix-out for mixed LFO-shapes

the LFO-modulation stepper switches selectable sources for modulation in sequence or at random

'magic eyes' as visual control for LFO & S&H in motion

one ADSR EG for VCA

adjustable level for direct, LP and HP output with separate pan each

stereo-delay for PingPong effects (bpm-synced)

User-Waves for oscillators now via Soundfontfiles (SF2) and wav-files loadable (see Appendix for details and howto)

The features in detail

The sound-sources



There are three oscillators with octave range adjustable -2 to +2 **[Oct]**aves & **[semi]**tones. There is also an **[On/Off]** button for each oscillator to mute. The **SF2** button is used to load **USER-SF2** (preloaded with 30 waves within the registered version only!) and to switch between internal and ext. soundsources. The **[Level]** knobs determine the basic output level of each oscillator. By **[LvlMod]** you can select a source to modulate the output level of each oscillator followed by a knob to adjust amount of modulation **[ModAmt]**.

Transition System



ProtoPlasm TS features a variant of the Transition system of the STS-21. As there are only three osc. a few changes had to be done thus three transition modes have been installed:
Osc. 1:2 - Osc 1 transits to Osc 2 while Osc 3 is sounding anyway (unless switched off)
Osc. 2:3 - Osc 2 transits to Osc 3 while Osc 1 is sounding anyway (unless switched off)
Osc1:2/3 - Osc 1 transits to Osc 2 AND 3!

Input for Transition is the level modulated signal. Transition can be modulated by a selectable source. Note this modulation is affecting when transition is at endpoint: just watch the blue bar moving showing how it works.

All in all it turns out that the ProtoPlasm is now the most versatile synth now in my collection and even less CPU-hungry than the STS-21.

The Filter section



There are two independent filters one 24dB lowpass filter with resonance [Q] and a 12dB hipass filter with resonance. Each filter can be modulated by an ADSR-EG and/or a selectable modsource from the LFO-section. The **[ModBal]** determines the amount of modulation between ADSR EG and LFO-source. The **[Boost]** knob provides an adjustable enhancement of the current filter frequency. Three further knobs (**FM 1, FM 2 & FM 3**) which adjust the level of each respective oscillator for Filter FM (frequency modulation). In order to use Filter FM **Q** must be up to a certain amount. Note: Due to the variety of oscillator waveforms the results will differ.

The LFO section



The LFO section offers three shapeable LFO's and one shapeable Sample and Hold, all bpm-synced (by divisors 1/16note to 8 bars) plus outputs for mixed waveshapes. In addition osc. 1 and 2 also provide patternlike (Mod1-3) waveforms for far more flexible modulations. All in all this provides a very comfortable way in getting really complex and vivid modulations and due to the concept this is easier to be handled than e.g. an 8stage envelope.

The Sample & Hold output can mixed with a selectable output of one LFO too. The upper Shape knob at S&H smooths the output while the lower Shape knob changes the structure of S&H events even to more or less.

Super Modulation



With only three knobs there are very efficient means to get complex modulations on the oscillator's level mod plus transition mod as well as each filtersection comprising filter FM mod. One knob controls all mod targets at each section. The mod signals used are variations of summed signals of all LFO and S&H. Thus you can also control this mod by adjusting the setting at LFOs and S&H. Esp. Mix S:L is suited to subtract too much S&H in Super Modulation in adjusting the knob more to the (right) selected LFO source.

The Mix and VCA section



The output section provides an [**A**] [**D**] [**S**] [**R**] envelope generator for shaping the overall signal with **A**ttack, **D**ecay, **S**ustain and **R**elease. Also You can mix the amount of level from outputs of direct(unfiltered signal), Lowpass and HiPass filter. In addition to this there is an independant pan-setting for each output.

There are four [**Lazy?!**] buttons to randomize certain sets of parameters for All, Oscillator, Filter and LFO sections. This is a really easy way to generate new ideas for new patches ;-)



Delay and Main Out section



This stereo delay is synced to host clock at selectable division-settings by **[Dly-Ping-L]** and **[DlyPong-R]**. Use the **[Dly-Lvl]** knob to adjust the amount of delayed signal to the normal signal while the two **[Fdbck]** knobs determine the amount of repetitions of each delay. This is useful to get more delay repetitions at shorter delay times while the other delay has a longer delay time setting. So you can compensate the repetitions on the shorter delay vanishing too early. **[DlyS]** switches Delay On/Off. If you want to have a continuous delay when switching from one patch to the next it is advisable to have the divisional settings at the same divisor then no clicks should occur. **[Vol]** controls the overall output of the synthesizer.

Hint according volume: 1st raise levels at Osc. and Vca as much as needed for each. Do not forget to raise VCA Sustain if sound is not of a decaying type. Finally adjust Main Vol for appropriate Out-level. Caution: please note this level might get higher the 0dB under certain conditions - so be careful with this one!

General hints: 1. When moving a knob or slider you can also press <Ctrl> on the PC-keyboard for fine adjustments. 2. Long release settings at the ADSR EGs use more CPU.

Known bugs: loading a single patch program (*.fxp) to first program number (and only there) may change the waveform of the oscillators. This does not apply when loading a patchbank file (*.fxb)! This has to be fixed in the development-environment.

Typical CPU-usage on a PIV at 2.53GHz is 17% at four voices with RAM at 333Mhz
In order to free RAM-space you can unload the preloaded User SF2

The eight voice version of ProtoPlasm Pro TSM is available via Paypal or ShareIt for 35 Euro (introductory price) - please visit www.hgf-synthesizer.de for further details.

There is a also **Free Version of ProtoPlasm** - limited to 2 voices instead of 8, one User-SF2 at osc. 1 and less internal waveforms (only 96 instead of 150).

Other VSTI by H. G. Fortune are:
LaserBlade Synthesizer
STS-21 Space Transition Synthesizer

X-Wheel of Fortune II Pro
X-Wheel of Fortune II (Freeware)
X-Wheel of Fortune Pro

Homepage: www.hgf-synthesizer.de
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Credits, thanks and further info

The ProtoPlasm Synthesizer has been created with Synthedit by Jeff McClintock with only two further modules by David Haupt, one by Dan Worrall and modules by Kelly D. Lynch.

The stunning GUI has been done by **Vera Kinter** (Brno, Czech Republic) - very big thanks!

Preset patches were kindly done by:

Vera Kinter (VK); Annabelle (ANN); Dimitri Schkoda (DS); Timothy Conrardy (TC); Derek Kay (DK); Stephan Müsch/rsmus7 (SM); Rene Ebenhan (R); Steve Blenkinsopp (Waveform); Miguel Matas (MTZ) and vurt (v)

A big thanks also goes to all who have helped, betatested and taken part elsewhere within this project also those at KvR esp.: Jack Dark, Ugo, vurt and some others. Not to forget www.pluginindex.de for providing a direct download for Prototypx which has become ProtoPlasm now.

H. G. Fortune

near Bonn (Germany) August, 29th 2005

updated to TS: January, 8th 2006

updated to TSM: February, 25th 2006

Appendices

List of internal waves

now **120 internal waves PLUS 30 preloaded bonus waves** in User SF2.

Free version with 96 internal waves (from 1 to 96)

001.Interstellar	026.KS-HumOhh	051.JustAFlute	076.FlowLoop	101.FarFeesa
002.Overdrive	027.KS-Nebulous	052.S-BigGongL	077.TalkLoop	102.Tundra
003.Fat-CS-080	028.KS-FatBras	053.DXEP-Base	078.CharmLoop	103.FarHorizon
004.SyncedOsc	029.KS-Spectral	054.Octavian	079.ArcaneBells	104.FroAndTo
005.MajesticBrass	030.KS-Syncer	055.AtkSyn	080.MoltenBell	105.SpaceRide
006.Orkestra	031.KS-Pudding	056.MSawBras	081.TubeBell	106.BellWave
007.FogString	032.ModChord	057.SynAthmoL	082.PitchGong	107.AuraWave
008.MysticVox	033.Chord2	058.AsianMetal	083.GongyFlute	108.QQH-Waving
009.FaintVox	034.ArcaneRealms	059.Mythosfer	084.JapFlute1	109.FuzzDigi_Z
010.ChoirString	035.PPG-OrgVox	060.BenVoxMet	085.BreathVoc	110.Digital_X
011.FogChoir	036.PPGVox	061.SwellStrs	086.HallVox	111.AnFatSync
012.Bassical	037.SawPad	062.ArcaNostra	087.TubeVox	112.MetalSync
013.HauntedPia	038.SynSquarA	063.MinorAtm2	088.BottleVox	113.AnLead
014.DropDown	039.BellMagic	064.XtraOrchst	089.FakeVox	114.Fat-5th
015.ShiverBell	040.SynBas1	065.LowVox	090.VoxyNse	115.3FatOsc
016.MetalBell	041.SynBas2	066.HuanFlute	091.NoiseChord	116.MovinJaws
017.Bella_Donna	042.SynBas3	067.Trumping	092.TubeNse	117.PS6-FatSaw
018.SpaceBells	043.BullSynBas	068.DrawbarOrg	093.MetalNse	118.ShiverBras
019.InsideTube	044.FullPoly	069.OmziFSteps	094.JetNse	119.RealBrass
020.AlienSpectr	045.FM2Slow	070.OmziFMyth	095.NoiseOne	120.Rain&Crackle
021.Nocturnal	046.LongSync	071.OutLand-2	096.MinAtmo	
022.6T-FilterFM	047.DistSync	072.MovinBell	097.OrcStrings	
023.6T-Ferox	048.Fulldrive	073.InTheWoods	098.Symphonic	
024.6T-Basics	049.NoiseChoir	074.LightningL	099.4Score	
025.KS-EthnoBlo	050.VA-Vox	075.Mars-Siren	100.OrganaVox	

Bonus waves in User SF2	Bonus waves in User SF2	Bonus waves in User SF2
001._AI_Saria	011._RhytmLp	021.#Watery
002._di_Motou	012._KotoicLp	022.#Seaside
003._SwirlyHole	013.#MetalHit	023.#Thunder-nl
004._Spaceballs	014.#MetalHit-nl	024.#Falcon
005._Bubbles	015.#ALoop	025.#Jungle
006._Sparkling	016.#ALooph	026.#Tropica
007._Mystery	017.#ALoop-nl	027.#BigRoar
008._Mystery-nl	018.#BLoop	028.#Baby_Kong
009._Cymbalic	019.#BLoop-nl	029.#Juno'sBird
010._Cymbalic-nl	020.#Flowater	030.#Werewolf

nl = non looped wave

More than 1200 patches with the registered Pro version - (128 patches in free):
(supplied banks have been adopted to the new engine)

Recent Patchbanks are:

TSM-Internal .fxb

TS-Bank1.fxb

TS-Bank2.fxb

TS-Bank3-Ann.fxb

There are also 768 early patches in 6 patchbanks (from 1st release on) in a zip-file with the Pro version:

TSBank00early.fxb to TSBank05early.fxb

List of MIDI-Controllers (CC) used within the ProtoPlasm

>CC	Destination	>CC	Destination
> 07	Main Volume	>87	Hipass Filter Cutoff
>13	Sample & Hold Shape	>88	Hipass Filter Q
>14	LFO Mix S:L	>89	Hipass Filter Attack
>15	LFO Mix Source	>90	Hipass Filter Decay
>16	LFO 1 Sync	>91	Hipass Filter Sustain
>17	LFO 1 Waveform	>92	Hipass Filter Release
>18	LFO 1 Shape	>93	Hipass Filter Envelope Amount
>19	LFO 1 Mix 1:2	>94	Hipass Filter ModBal
>20	LFO 2 Sync	>95	Hipass Filter LFO Modulation Source
>21	LFO 2 Waveform	>102	SuperMod Osc *
>22	LFO 2 Shape	>103	SuperMod LP *
>23	LFO 2 Mix 2:3	>104	SuperMod HP *
>24	LFO 3 Sync	>105	LP Fm 1 *
>25	LFO 3 Waveform	>106	LP Fm 2 *
>26	LFO 3 Shape	>107	LP Fm 3 *
>27	LFO3 Mix 3:1	>108	HP Fm 1 *
>29	Left Delay Feedback	>109	HP Fm 2 *
>30	Right Delay Feedback	> 73	HP Fm 3 *
>31	Delay Level	>110	Osc 1 Wave Select
>74	Dir Pan	>111	Osc 2 Wave Select
>75	LoPass Pan	>112	Osc 3 Wave Select
>76	Hipass Pan	>113	Osc 1 Level Modulation
>77	Lopass Filter Cutoff	>114	Osc 2 Level Modulation
>78	Lopass Filter Q	>115	Osc 3 Level Modulation
>79	Lopass Filter Attack	>116	Osc 1 Mod Amount
>80	Lopass Filter Decay	>117	Osc 2 Mod Amount
>81	Lopass Filter Sustain	>118	Osc 3 Mod Amount
>82	Lopass Filter Release	<u>added in TS:</u>	
>83	Lopass Filter Envelope Amount	>70	Transit Time
>84	Lopass Filter ModBal	>71	Transition Mod Amount
>85	Lopass Filter LFO Modulation Source	>72	Transition Modulation Source
		>12	Delay switch on/off (mute Delay) *
		* changed in ProtoPlasm TSM	

Appendix on Soundfonts (SF2)

General note: place all SF2 you want to use into the subdir which has been created by the ProtoPlasm (e.g. C:\somewhere\VSTplugins\HGF\ProtoPlasmTS???\) you can also have subdirs there. The VSTi will automatically point to this subdir so it is more convenient to load files from there.

If You load a Soundfont file e.g. into slot for osc. 1 this is valid for the whole patchbank i.e. this soundfont will be used in all patches osc.1 settings switched to SF2 - while set to internal the internal waves remain valid. For each osc. you can use a different soundfont being valid for all patches of course. Saving the bankfile will keep the resp. settings. Thus using different bankfiles you can manage more than three soundfonts in usage at all.

Note on SF2-files:

Although you can use basically any SF2 around there are two limitations: the internal SF-Player does support only one layer from an SF2-preset or instrument (the bottom one as seen in Vienna) and the synthfunctions of the SB-hardware are not supported as a specific SB soundcard is not needed.

In order to make SF2-files from Your wavefiles You can use the freeware tool **Viena** by Kenneth Rundt - <http://www.saunalahti.fi/kru99/index.htm>

Viena does not require a Creative Soundblaster Live or Audigy Card to assemble SF2-files and please note there is only one 'n' in Viena (unlike *Vienna* from Creative Labs)

As a freeware Wave-Editor with capability to set looppoints you can use Yamaha's TWE Ver. 2.3.1 which is running on Windows XP systems.

Loading wav-files



Using the SF2 button the filebox will appear. Click on [File:] to get the file / directory selectorbox to choose a wave file. Up to 24Bit and loops are supported. Note: This is not made to play drumloops etc. at a synchronized tempo or so - this is a synth not a drumthing!

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