

High performance Linux distributions Super and Underground Desktop

# BUILT FOR SPEED

Experimental Linux distributions can take risks to reach for better performance. We investigated a pair of promising experimentals: Super Linux and Underground Desktop. **BY MARCEL HILZINGER**

**T**he beauty of Linux is that you can shape it to do whatever you want it to do. Several distros focus on high performance. Of course, there are always many paths to any solution, and all the high performance Linux distributions take a slightly different approach to delivering better performance.

This article examines a pair of promising but relatively unknown Linux distributions built for speed.

Super Linux is a Suse-based distro designed to serve as a testbed for new openSuse technologies. Super is essentially a faster and more bleeding-edge version of openSuse. The Super develop-

ers provide higher performance by embracing technologies that are considered too risky or too new for a mainstream enterprise product such as openSuse.

Underground Desktop Linux takes a different path to achieving high performance. Unlike many derivative distros, which are based on the code of mainstream titans like Debian, Suse, and Red Hat, Underground Desktop comes from the high performing and minimalist Arch Linux distribution. Arch is specifically optimized to deliver high performance



Figure 1: The text-based Underground Desktop installer just needs two partitions and the root password.

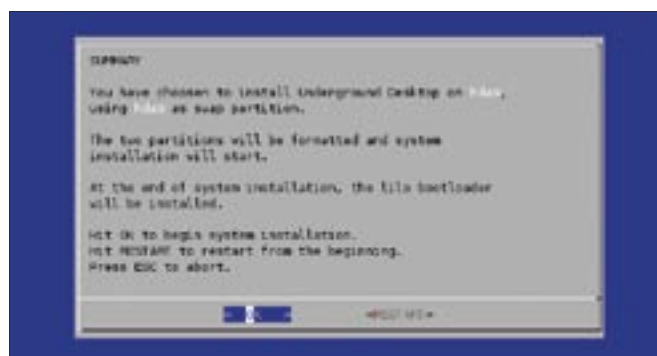


Figure 2: Before launching into the install, Underground Desktop displays an overview of critical parameters.

on the i686 architecture, and Underground Desktop delivers the optimizations of Arch to a friendlier desktop Linux environment.

We'll show you what we found when we took these high performing distros for a test drive.

## Installing Super Linux

Super [1] and Slick [2] started life as separate projects. Both are based on Suse Linux, and both aim to add features that Suse does not officially support. As there was a lot of overlap between the two projects, the developers recently decided to focus their energy on a single project.

If you are interested in replacing your Suse Linux with Super Linux, you can download one of the three ISO images from [3]. *super-open-SUSE-final-20051003-standard-minimal.iso* comprises the basic system without a GUI. The *super-openSUSE-final-20051003-standard-kde.iso* and *super-open-SUSE-final-20051003-standard-gnome.iso* images are feature-rich CD images with the KDE or Gnome desktop. Check the "Accelerating Suse" box for more information on converting an installed Suse Linux version to Super-Suse. The Super installation is not much different from a standard Suse installation.

We notice two things in our lab:

- Super opens port 22 for remote SSH access by default.
- Super disables automatic login via the K Display Manager by default.

When you reboot, Super sets up the Prelinker, which helps programs launch more quickly. To do so, the Prelinker modifies all your binaries and libraries. Depending on your CPU, this process can take up to 45 minutes. When finished, you can log in to KDE or Gnome with your normal user name.

## Underground

The Underground Desktop [4] install is text-based. Underground Desktop was formerly based on Debian and had a graphical installer. The developer decided to move to Arch Linux. Version 020 is now based on Arch Linux "Noodle" and, just like Super Linux, it adds performance-tweaked CK patches to the kernel [5]. Underground Desktop uses Reiser4 for the root directory and the RC1 version of KDE 3.5.

After booting from the CD, a welcome screen appears listing the individual steps (Figure 1). Click *OK* and select the disk where you will be installing Underground Desktop. Click the entry showing the size of the disk, and create a swap partition, and a root partition, as a minimum requirement. Choose type 82 for the swap partition, and type 83 for the root partition. When you are done, quit the menu, and then press *DONE >*

to continue. In our lab, Underground Desktop could not handle existing partitions and displayed the following error:

```
/bin/setup: 473: Syntax error: 2
5245191 32098/1000000
```

After we deleted two partitions and rebooted, the *fdisk* tool performed as expected. If you prefer to format an existing partition, select *DONE >*

Use the next two dialogs to specify the root partition and the swap area for Underground Desktop. You can either select the partition you just created or choose to format an existing partition. Set the root password in the next dialog. Underground Desktop now displays an overview screen (Figure 2) for the installation. The whole procedure takes less than ten minutes. You can then log on as *root* in the new KDE desktop. Underground Desktop did not detect our lab

### Profile: Super/Slick

**Target group:** Power users with a fast Internet connection who are not afraid of experimenting with a new Linux distribution. Advanced Suse users who would prefer a leaner basic system.

**Special features:** Three different ISO versions available: A minimal ISO with a 290MB footprint but without a GUI desktop, or a full 650MB ISO for KDE or Gnome. CK patches for improved multimedia support.

**Not suitable for:** First-time Linux users. Users without an Internet connection.

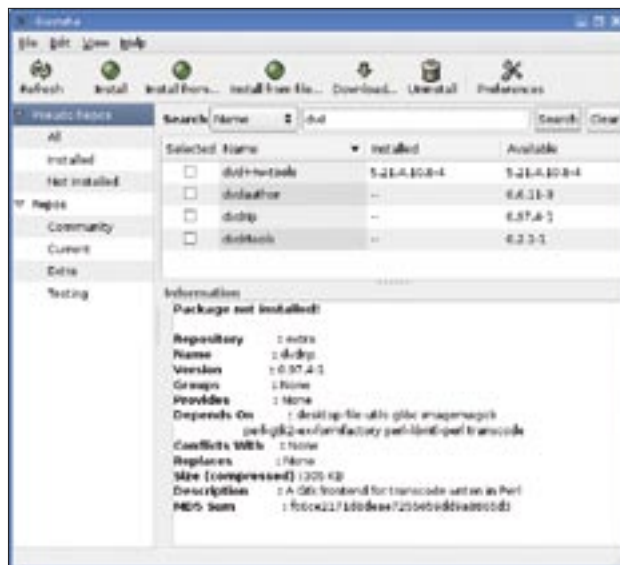


Figure 3: Underground Desktop's GUI-based package manager, Guzuta.

machine's hardware correctly. The screen resolution was set to 1024x768 instead of the optimum 1280x1024, and it was impossible to enable 3D acceleration support for the ATI card.

## Finishing Touches

Underground Desktop and Super both displayed the graphical KDE login screen after the install. The Super desktop looked neat and tidy and stuck to the

### Accelerating Suse

If you already have Suse Linux on your machine, and you would like to enhance the current distribution with the Super features, there is no need to reinstall. Just launch YaST and select the *apt* package for installation. Then, working as root, open the */etc/apt/sources.list* file with your favorite editor and insert the following line:

```
rpm http://ftp4.gwdg.de/pub/2
linux/suse/apt SuSE/10.0-i386 2
rpmkeys base java update extra 2
suser-jenge1h suser-guru 2
suser-jogley suser-agirardet 2
packman packman-i686 2
wine suse-people security
```

If you have worked with Debian or a Debian derivative in the past, the next few steps en route to converting Suse to Super-Suse should be familiar to you:

```
apt-get update
apt-get install kernel
apt-get dist-upgrade
```

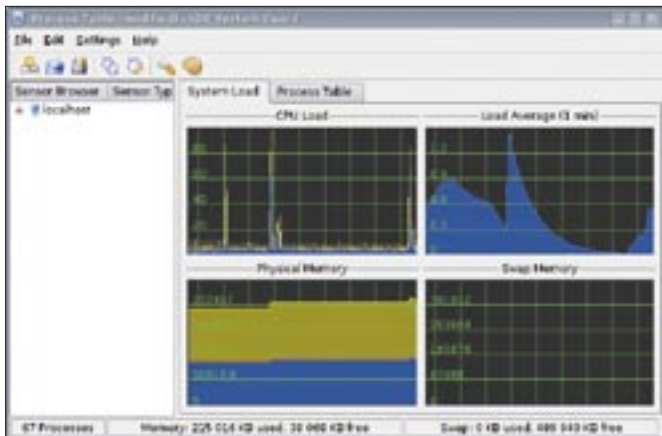


Figure 4: The KDE system monitor graphic showing regular CPU peaks in Underground Desktop.

Suse defaults. Underground Desktop puts numerous icons on your desktop, some of which can help you configure the system, but also including four games.

We tested Internet access first. Super gave us DHCP-based Internet access at first asking. Underground Desktop set up a static IP address. But you can click the *Lan Setup* icon on the desktop to switch to DHCP. There are also ADSL and modem connection icons on the Underground desktop. Underground does not support ISDN. Sound and printing worked out-of-the-box.

The GUI-based Underground Desktop package manager, *Guzuta* (Figure 3), comes pre-configured. After launching the program and clicking on *Refresh*, you can install packages from the full range of Arch repositories: *Community*, *Current*, *Extra* and *Testing*. *pacman* adds command-line package management support.

Super involves more effort. Start by adding the required Apt repositories to

*/etc/apt/sources.list*. See the “Accelerating Suse” box. Super does not have a GUI-based package manager for Apt. You can give the following command:

```
apt-get install kynaptic
```

to install the *Kynaptic* package manager. Following this, even newcomers should have no trouble installing packages.

### Pros and Cons

Super and Underground Desktop are designed to be high-performance desktop distributions, although version 020 of Underground is obviously intended as a test version. However, we were a bit disappointed with the Underground’s enormous performance problems. DVD and video playback was jerky. Other programs did not launch as fast as we would have liked, and froze on occasions.

Some research on our part exposed *Reiser4* as the culprit. *Reiser4* puts the machine into a split-second freeze while synchronizing the filesystem. The KDE tools *ksysguard* diagram in Figure 4 gives you a clear view of what is going on. A workaround that does not actually remove the issue, but at least gives you reasonable performance, is to stipulate the *noatime,nodiratime* mount options

for the root directory in */etc/fstab*. Interestingly, the problem did not affect all of our lab machines, and we are still working on discovering the cause.

Underground Desktop has a good selection of programs: *Mplayer* and *Xine* are both on board, and *Libdvdcss* is pre-installed. System notifications are configured, and Underground played audio files out-of-the-box. Underground Desktop performed well in our stress test, which involved burning a CD, compiling a program, and playing MP3s at the same time.

Admittedly, we did find the choice of programs for the basic system slightly strange, as it lacked common packages such as *openssh* for remote access, or *hdparm* for hard-disk tuning. We were surprised that the distribution used the *Lilo* bootloader. *Grub* is far superior, especially on machines with multiple distributions.

We assume that the Underground developers chose *Lilo* on account of *Reiser4*. Underground Desktop’s boot time is fast – 35 seconds – but the system failed to live up to the expectations we had for *Reiser4*. It remains to be seen if the *Reiser4* bug has been eradicated by the time version 021 is released, and if so, the next version will definitely be worth looking into.

There were no performance issues with *Super/Slick*. Using *Ext3* as its root filesystem, *Super* set a new boot record of just 29 seconds. *Super* wasn’t fazed in the least by our stress test, which involved burning a CD, compiling a program, and playing a DVD at the same time. The only niggle we had with *Super* was that the distribution is too similar to *Suse Linux* to be really cool. On a more positive note, the developers are working on a new version with a modified KDE. The new version should be available for downloading by the time this issue hits the newsstand. ■

### Profile: Underground Desktop

**Target group:** Advanced users with broadband Internet connection. Debian or Arch Linux experienced preferred, but not essential.

**Special features:** *Reiser4* as root directory, current KDE 3.5 version. Jam-packed with beta software. Archck5 patches for excellent multimedia performance. 600MB ISO.

**Not suitable for:** *Suse* newbies who just want to try something new. Linux newbies, or anyone with a nervous disposition.

### Reinstalling Lilo

If you try to replace the *Lilo* boot manager with *Grub* after installing Underground Desktop, you may not be able to access Underground Desktop at all, as *Grub* does not support *Reiser4*. You can use the rescue system from *Suse 10.0* to reinstate *Lilo*, however. To do so, boot the rescue system, and then load the *Reiser4* module by entering *modprobe reiser4*. Now mount the Underground Desktop root partition in a temporary directory. The command for */dev/hda7*, for example, is *mount -t reiser4 /dev/hda7 /mnt*. No *set /mnt* as the new root directory (*chroot /mnt*) and then give the *lilo* command to reinstall *Lilo*.

### INFO

- [1] Super: <http://www.opensuse.org/SUPER>
- [2] Slick: <http://www.opensuse.org/SLICK>
- [3] ISO Download: <ftp://opensuse.linux.co.nz/pub/SUPER/iso/>
- [4] Underground Desktop: <http://www.ludos.org/Underground/>
- [5] Arch CK Packages: <http://iphitus.loudas.com/archck.php>