WHEN university students gather at weekends, it's usually to watch sport, listen to music, drink beer or a combination of all three. However, a recent gathering of academic types at the University of San Francisco had other things on its collective mind.

Its objective was to create one of the world's fastest supercomputers. Supercomputers are made up of large numbers of individual processors that work in parallel to provide serious number-crunching power.

They excel at heavyweight tasks such as weather forecasting, atmospheric calculations and model and design simulations - anything that requires a large amount of computational grunt.

Organisers of the US event wanted to create a supercomputer using a collection of everyday personal computers, and gave themselves just one day to do it.


The event was run on similar lines to the social phenomenon of flash mobbing, which involves groups of people gathering together in a public place, performing a stunt, and then dispersing.

The activity is organised by email or SMS messages on mobile phones.

In a recent incident in New York, a crowd of 200 people gathered in a hotel foyer, loudly clapped for 60 seconds and then quietly walked away.

It may sound bizarre but it shows what the concept can do - and it bewilders a lot of bystanders at the same time.

Using this concept, organisers of the flash-mob computing event encouraged volunteers to bring along their notebook or desktop PC and link it with others using clever controller software.
Any machine would be accepted, as long as it had a minimum of a 1.3GHz Pentium III (or AMD equivalent) processor, 256MB of ROM, a network card and a CD drive.

Once the machines were linked, the plan was to combine the processing capabilities of all the PCs to create a supercomputer that could rank among the 500 fastest on the planet.

The event was an impressive exercise in social and practical engineering.

A total of 669 computers were eventually linked in the university's gymnasium using a series of network hubs.

Each PC was loaded with the required software and the experiment began. Although the network failed to reach a combined processor speed fast enough to rank in the world's top 500 supercomputers, it did manage 180 gigaflops.

That's pretty impressive for a bunch of PCs, although it pales in comparison with the world's fastest supercomputer - the Japan-based Earth Simulator, which runs at a blistering 35 teraflops (35,000 gigaflops).

That machine cost more than $US400 million ($536 million) to build.

As well as the technical achievement of getting a flash mob computer to work, such an event gives an inkling of what may be possible by combining computing resources in the future.

With people owning increasingly powerful computers, what could be achieved if they could be combined for specific tasks? An early example of such a concept is SETI@home, an ongoing project scanning radio waves from outer space for signs of intelligent life.

Anyone with an internet-connected PC can join the quest by allowing the project to use processor time when their machine is idle.

Social commentator and futurist Howard Rheingold, who coined the term flash mob, has been pondering the potential of such processor sharing.
He foresees a time when groups will voluntarily pool their computing resources for a short time to achieve common goals. As well as combining the power of notebook and desktop computers, Rheingold and others point to a future when people will link other everyday devices to perform power-hungry tasks. A natural group for this is games consoles.

Sitting in many lounge rooms, these boxes have phenomenal processing power yet spend most of their time idle.

What could be achieved if that idle capacity was harnessed and used for bigger purposes? The concept also could be extended to portable devices such as PDAs and mobile phones.

Connected by wireless networks, they could be combined to create a hugely powerful virtual computer, capable of tackling a range of tasks.

In the future, users could agree to rent unused capacity in their devices to companies doing processor-hungry jobs.

The applications of such ad-hoc, virtual supercomputers are many and varied, and could include things such as finding cures for diseases or designing new drugs. Rheingold takes the concept even further, describing a future in which people carrying portable devices link them to share thoughts, experiences and even emotions.

Just as flash mobs quickly form, do something, and then disappear, these virtual groups will form, exchange information and then disperse.

While that kind of application may be years away, expect to see more flash-mob computer experiments in the not-too-distant future.

The software used to co-ordinate the 669 machines at the San Francisco event is available for free download at www.flashmobcomputing.org <http://www.flashmobcomputing.org>