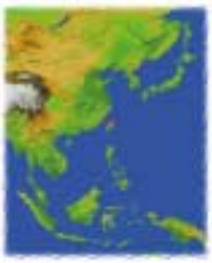

Acer

Taiwan

A Bold Vision for the PC

"Acer is in the unique position in which it has all the capabilities, superior design and cost-effective manufacturing, to play an integral part in shaping an internet-enabled digital world."

Stan Shih
Chairman & CEO

Few companies can claim expertise in the wide range of computing products manufactured by Taiwan's Acer Group. From its humble origins in Taiwan, the company has grown to become a top global player in the fiercely competitive PC marketplace, and provides jobs for 28,000 people worldwide. The company was ranked number 1 in an Asian superbrands awareness survey conducted by Readers Digest in 1999 and operates 21 manufacturing sites around the globe.

In addition to its core PC and laptop range, the company is leading the field in 'i-enabled' internet appliances, moving steadily towards a world of common communication and shared information. Among the many technologies either under development or in production are internet phones, 'I-walkman', cyber TV and 'smart' mobile telephones. Stan Shih, the company's charismatic Chairman and CEO describes this digital revolution as "100 times more important than the Industrial Revolution, it will be a 'social revolution' as it will be changing the way we live."

GenRad has been working with Acer in Asia for more than ten years. The company originally bought a GR2276 production test machine for the testing of its original desktop PC motherboards. Since then systems have been installed in Taiwan (4 lines), the Philippines (8 lines) and China (8 lines) to test notebook computers, mobile and video phones and a range of peripheral products. The motherboard production lines at Hsinchu run 24 hours a day producing 70,000 boards a month, 40% of which are used in Acer's own products, but the rest are produced on behalf of IBM and third party manufacturers.

Support for Acer's test programme comes from GenRad's local agent, Giantec. "Originally they helped with full program development and fixturing, but now we only require assistance with specialist program libraries and fixturing. Training is absolutely essential for us, especially in terms of setting up new facilities in China. For example, we currently have just 60 days to set up a new line in China, so finding and training employees will be difficult. GenRad will be able to support us locally," says MK Chang, Associate Director at the Computer Systems Plant at Hsinchu, Taiwan.

"GenRad's software library gives much greater flexibility than other test vendors, particularly in areas such as boundary scan," he says.

A typical product lifecycle in the computer world is no more than

几乎没有公司能够象台湾宏碁集团那样宣称在制造各种电脑产品方面拥有专长技术。宏碁在台湾初创起家，目前已经成为竞争激励的PC市场的领先厂商，在世界各地的雇员多达28,000人。GenRad公司与宏碁公司在亚洲合作已有十多年的时间，帮助其改进PC主板的测试功能。

9 months, 3 months to develop and prepare a new design and six months of production. Most of the design work is completed at the company's world headquarters in Taipei, but Hsinchu is responsible for test program development and deployment, so ease of use, reliability and local support are crucial.

"We have always developed our own production software and functional test equipment for PCs and memory products. However, the functional testing is the main production bottleneck. We can have up to 10 stations running functional test for each line with test times up to 13 minutes per board. Reducing this time is one area where we are cooperating with GenRad. Video and audio tests are the most difficult and most critical to PC production. In some instances we use low cost dedicated testers for this but a more uniform test platform will be the next step. We generally achieve a 95% first pass yield."

And as PCBs are becoming increasingly more complex with greater density of components, Acer will need to move to a more distributed test strategy and greater focus on faster, more reliable functional testing. MK Chang is also looking at AOI and X-ray techniques as possible future substitutes for traditional in-circuit testing.

"Technology changes so quickly," says Product Engineer Bryant Lai, "We cannot afford to stop working with new techniques and developing better manufacturing solutions. Internet appliances and wireless products will be a big challenge for us and will need to be adapted to the mass production model we are used to."

Acer Milestones

1976 Company founded under the name 'Sertek' focussing on product design

1978 Established a microprocessor training centre to train 3000 engineers

1979 Designed Taiwan's first mass-production computer for export

1981 Established operations at Hsinchu, now one of the largest PC product manufacturing sites in the world

1984 Establishes peripherals and publishing ventures in Taiwan

1985 Retail operations established in Germany and Japan

1986 Acer beats IBM in the race to produce the first mass production 32 bit PC

1987 Company renamed as ACER and acquires Counterpoint Computers

1989 Original joint venture with Texas Instruments to develop DRAM modules

1990 Acer acquires Altos

1993 Acer develops first 64 bit architecture to link RISC technology with Windows

1994 Acer introduces the world's first dual Pentium PC

1997 Acer acquires notebook subsidiary of Texas Instruments to become the world's largest notebook manufacturer.

1998 Acer acquires remaining interest in Texas Instruments and becomes the Official Computer Sponsor of the 13th Asian Games in Bangkok

1999 Acer ranked Number 1 in Readers Digest Superbrands survey.