

DOES IT RUN IN THE FAMILY?

Qualcomm founder Irwin Jacobs built a great company. Now his son, NEW CEO PAUL JACOBS, has to keep it rocking—and measure up to his dad. By Stephanie N.

Paul Jacobs, CEO of Qualcomm since July 2005, is talking up the tech company's latest big bet: live television on your cellphone. Jacobs is spending \$800 million on the gambit, which includes a state-of-the-art network operations center a few miles from Qualcomm's San Diego headquarters. "You should see it," Jacobs declares proudly. "It's very trick."

A dozen years ago Qualcomm was a wireless tech company, pure and simple. It had developed the digital wireless process called CDMA (code division multiple access), which is now the leading standard in the U.S. and serves as the basis for every 3G (third generation) network being built around the world. Nobody would have guessed then that the company would one day be home to a fledgling media operation, and that its executives would be trying to do deals with TV networks and Hollywood studios. And nobody would have heard Dr. Irwin Mark Jacobs, a founder, previous CEO, and Paul's 73-year-old dad, use the word "trick" to describe a data center—or anything else.



HISFATHER'S SHOES
CEO Paul Jacobs (left) with
his dad and mentor,
Qualcomm board chairman
Irwin Jacobs

But the world that Qualcomm has long dominated is changing, and to keep it going strong, the younger Jacobs must revamp the company's business and its know-it-all culture—the things his father created. To do that, Paul Jacobs, 44, can't just take a page from his father's playbook. The older Jacobs badgered the wireless industry into adopting CDMA as a way to squeeze more calls onto scarce wireless spectrum—even though much of the world embraced a competing standard called GSM. "Irwin's not a customer-knows-best kind of guy," admits Steve Altman, Qualcomm's president. He basically bet the whole company on this superior but underdog technology, a move that earned Irwin Jacobs a reputation for stellar salesmanship, arrogance—and prescience. But Qualcomm is no longer the industry underdog, and its challenges today call for Paul Jacobs to exercise a little more diplomacy and a lot more strategic sophistication than when his father, now universally heralded as an industry icon, ran the show. The younger Jacobs is keenly aware of the expectations laid before him. "I look at the opportunity we've been given, and it makes me feel like we really need to succeed and grow the business," he says. "It's the No. 1 thing I feel."

It won't be easy. Since Irwin Jacobs passed the baton to his son, the company has been under steady attack: On one side are existing competitors that think Qualcomm is too powerful and are pushing it to reduce the royalties for use of its CDMA patents—a key high-margin revenue stream for the \$7.5-billion-a-year company. On the other side are new rivals, such as Intel, which think CDMA isn't robust enough to handle all the cool things we're going to want to do with our phones. In the past six months Qualcomm shares are down 24% on concerns that the company's business model is in trouble.

Jacobs isn't reinventing Qualcomm so much as moving it beyond his father's laser-like focus on CDMA. That means tamping down an Irwin-like instinct to promote Qualcomm's products as technically superior and pushing a more agnostic view of the wireless future. So even though Jacobs is no fan of the Wi-Max broadband platform Intel is backing (he thinks Qualcomm's nascent Flarion broadband product will work better for mobile users, natch), he says he'll incorporate Wi-Max into Qualcomm chips if customers demand it. Similarly, a new chip for receiving television signals on a cellphone includes modems for Qualcomm's TV standard, dubbed MediaFLO, but also for a competing process called DVB-H that's already being deployed by some operators in Europe. And then there's MediaFLO USA, the company Qualcomm is building at great expense in order to get American consumers to tune into television on their cellphones. The endgame is simple: If Qualcomm can make it easier for carriers to offer TV, broadband, or other services, regardless of the standards, consumers will want to buy handsets that provide those services. And those handset sales should, in turn, drive more cellphone sales (read: more licensing and chip revenue for Qualcomm).



BOYS (from left) Jeff, Hal, Paul, Irwin, and Gary Jacobs at Paul's 1984 college graduation

"All those things are good trends for us," Jacobs says.

Not that there isn't cause for skepticism about MediaFLO. The service came to market after rival DVB-H, it has only one confirmed customer to date—Verizon Wireless—and if the technology is so great, why is Qualcomm, a company with no experience as a wireless operator or a media company, building the system itself? Qualcomm has heard such criticisms before, only last time around skeptics in the wireless industry were casting doubt on the viability of a Johnny-come-lately wireless standard called CDMA. To prove that the concept worked, Qualcomm had to build almost all the equipment needed to make a CDMA system: the chips, the software, the handsets, even the gear to route calls wirelessly. "I think it's a fair analogy," Irwin Jacobs concedes. "If we just talked about [MediaFLO] but didn't make things happen, it probably would have come to market, but not as quickly," he says. "This is what we've tried to do before, and I think this is going to be an exciting new business for us." In the end, of course, Irwin Jacobs proved to be fabulously right and turned Qualcomm into one of the great successes of the digital wireless era. Will cellphone-TV prove to be Paul Jacobs's path to greatness?

PAUL JACOBS didn't grow up expecting to become CEO. In fact, Irwin recalls, there was "a bit of a battle in the family" when Paul, the third of the four Jacobs children, all sons, chose to become employee No. 31 at Qualcomm. His mother, Joan, had hoped he'd be a college professor after completing his Ph.D. in electrical engineering at Berkeley.

He spent five years as an engineer, racking up a few patents, and then got his first real test in the business world: Irwin asked his then 34-year-old son to run a new business making wireless phones for CDMA carriers. Never mind that Paul had scant operational experience or that Qualcomm hadn't built a phone before. "I was in shock for a little while, to be honest," he admits.

Every day, it seemed, there was a new battle to fight: The carriers wanted to put their name on the phones, each wanted their own packaging for the devices, and they were constantly demanding more inventory at lower prices. There

There's less flaming at Qualcomm. "Paul has matured as the culture has matured."

were production glitches, and the business lost money, in part because of the high-rent location of its manufacturing facility in tony La Jolla, Calif. But the unit met a key goal: It got CDMA handsets into the hands of consumers. Qualcomm sold the business to Japanese cellphone maker Kyocera in 2000 for an undisclosed sum.

While he was running the handset business, Jacobs had his team work on a new layer of software that Qualcomm could use to install programs and applications special to each carrier easily. He realized that this could be used in any phone as a "language," like Sun's Java, that developers could use to make applications, and created a business around it. Analysts say the business, called BREW (Binary Runtime Environment for Wireless), has been one of Qualcomm's big homegrown successes, with 68 carriers—mostly CDMA customers, to be sure—adopting it as a platform for data services.

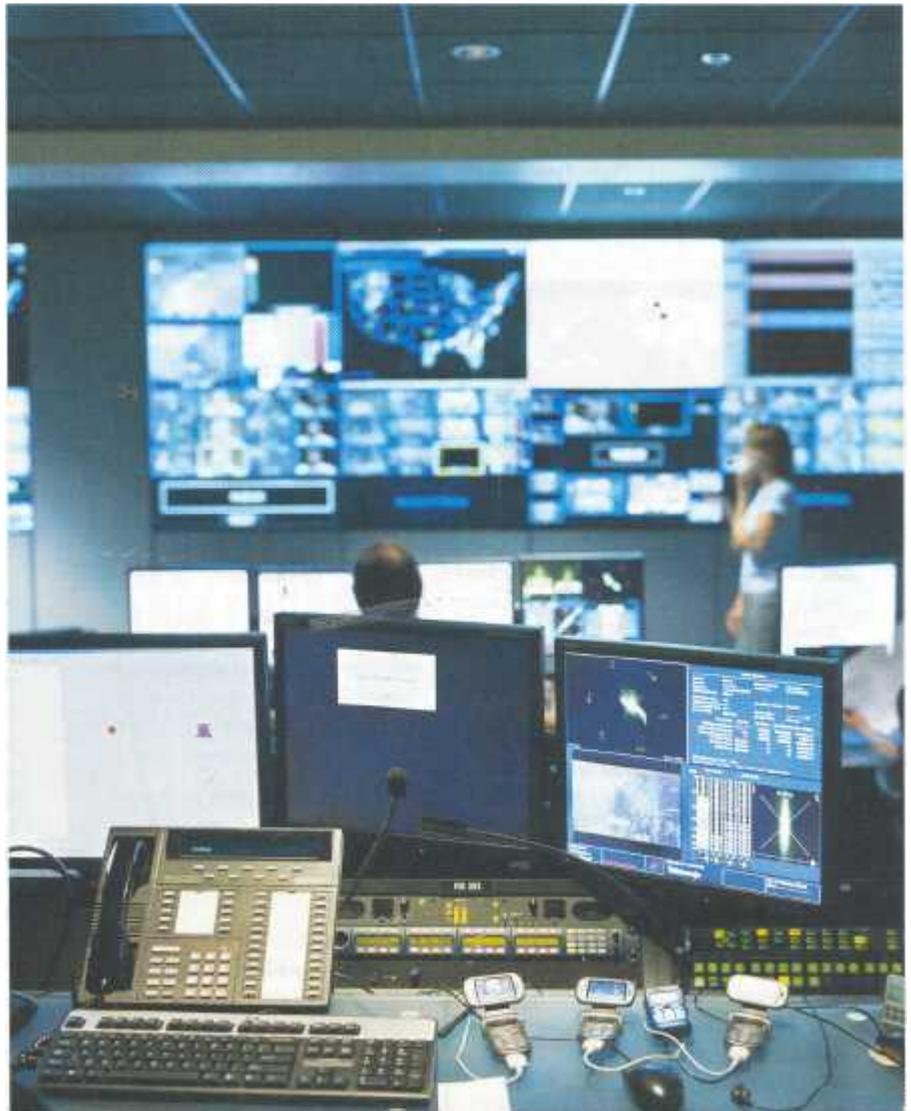
By 2002, Qualcomm's board of directors had decided to take up the issue of CEO succession. Irwin Jacobs was 68 at the time, and Wall Street was starting to wonder who would be next. Paul acknowledges that he's under pressure to live up to his father's high standard as a CEO, but he's characteristically nonchalant about it. "The benefits of having Irwin as a dad far outweigh the negatives," he says with a shrug. The elder Jacobs is chairman of the board, but says he avoids a day-to-day role to "let the new management do their thing."

As Paul Jacobs has moved up the corporate ladder at Qualcomm, he's had to manage a fierce competitiveness that's undoubtedly the byproduct of growing up in a house of four boys. "An early Qualcomm thing would have been to encourage flaming people in e-mail," says Jeffrey Belk, Qualcomm's strategy chief. "Now we're encouraged to pick up the phone and discuss things or set up meetings. Paul has matured as the culture has had to mature."

One of the first very mature things Jacobs did after becoming CEO was to meet with key customers. The tour was partly a response to the growing furor over Qualcomm's royalties, which culminated with an antitrust complaint filed with the European Commission in October 2005 by Nokia, Ericsson, Texas Instruments, and others. Qualcomm's opponents say the company's fees for use of its intellectual property are too high relative to its contribution to the end product and are driving up the price of handsets. Phone companies, which subsidize handset prices to make cellphones affordable for consumers, were up in arms. "The silver lining of the attacks was that

people wanted to talk to us because it was a top-of-mind issue," Jacobs says. Jacobs's position is simple: Qualcomm has done lots of research and development that has enabled new competitors such as China's Huawei Technologies and others to build cellphones without spending a lot of R&D money of their own.

That argument doesn't fly with handset makers like Nokia, which believes Qualcomm's royalty rate—industry estimates say Qualcomm gets about 5% of every CDMA handset sold—isn't commensurate with its contribution to the 3G standard that most of Europe is adopting. Chipmaker Broadcom, meanwhile, thinks Qualcomm is giving royalty price breaks to customers which also buy Qualcomm chips. (Separately, Broadcom and Qualcomm are suing each other for patent infringement.) Even some of Qualcomm's biggest fans, like Verizon Wireless CEO Denny Strigl, are pushing Qualcomm to lower fees. "When you look at the network side, the innovation in handsets, [CDMA] has been to our advantage," he says. "But we do debate what our cost should be on the handset side."



THE FUTURE? The nerve center of Qualcomm's new MediaFLO TV-via-phone operation

All that would unnerve even the most seasoned corporate chief, let alone a rookie. But Jacobs says he isn't rattled. "At the end of the day we are businesspeople, and we will find a way to settle," he says. "I think you need to stay calm to think clearly. One of the things that organizations look to in their leadership is calmness and confidence in the face of having to deal with business issues." Sanjay Jha, who heads up the chip business, says Jacobs solicited feedback from his top management about what the EC complaints might mean for the business. "It was the first time he'd taken a CEO-like command of a difficult situation," Jha says. "His reaction was very considered."

An avid mogul skier and a patron of the arts (he's part of an investor group that backed the Tony Award-winning musical *Jersey Boys*), Jacobs has brought a bit of informality to Qualcomm's executive ranks. (He uses the term "trick," after all.) Under Irwin, management usually wore jackets and ties

to strategy review sessions and other important meetings. At the first strategy session after Paul became CEO, engineering vice president Rob Chandhok recalls, "I think Steve Altman wore a Hawaiian shirt that day." Employees say Irwin's age and his iconic status in the industry may have made him seem unapproachable. "When people in the company talk about Dr. Jacobs," Chandhok says, "they're referring to Irwin."

One CEO duty that comes easily to Paul Jacobs is that of visionary. He brims with ideas and seems happiest when he can pontificate on how your cellphone will become your health monitor or media gateway (see box below). In this new world, applications will seek out the networks that best suit their needs, Jacobs says: So while you're in your car, your phone calls may travel on a 3G mobile network; if you're at home, your phone might route your calls over a low-cost fixed-wireless standard

TOMORROW'S CELLPHONE WILL ENTERTAIN, AMAZE—AND EVEN MAKE CALLS

Some features Qualcomm's Paul Jacobs thinks **YOU'LL BE SEEING SOON.**



LIVE TELEVISION CHANNELS ▲

Soon everyone will have access to multiple live TV broadcasts on their phones, eventually enabling communities to experience news and entertainment in what Jacobs calls "ultrareal time." **WHEN? NEXT YEAR**



PERSONAL IDENTIFICATION

Sensors will read biometric data—a thumbprint, say—to grant access to files stored in networks. **WHEN? 2 TO 3 YEARS**



HEALTH AND FITNESS ▶

Tiny sensors will be able to monitor your heart rate, which your cell can then automatically send wirelessly to your doctor or personal trainer. **WHEN? 1 TO 2 YEARS**



CHANGING FACES

The touchscreen display on this concept phone of the future reconfigures itself depending on which features are in use.



DIGITAL RIGHTS WALLET

If you download a song, your phone will be smart enough to know you've purchased a license for personal use, and can grant you permission to play it on your friend's stereo for a one-time listen. **WHEN? 3 TO 5 YEARS**



TAGGING ▶

Wireless phones become the ultimate social networking tool, marrying global-positioning technology and mapping databases (like Google maps) to let you "tag" a favorite spot so that if your friends walk or drive by, their phones alert them that they're passing a cool locale. **WHEN? 1 TO 2 YEARS**



MEDIA CENTER

You'll take photos and home movies using the camera in your phone, then, using a wireless LAN like Wi-Fi, project your handiwork on the screen of your flat-panel television for all to see. **WHEN? 3 TO 5 YEARS**

such as Wi-Fi. If Qualcomm is lucky, it will sell handset makers a lot of chips to help phones jump across these networks.

Unlike a lot of tech executives who just spout out sci-fi-sounding applications, though, Jacobs has a slightly philosophical bent. ("His biggest disappointment his freshman year at Berkeley was that he couldn't get into a poetry class he wanted to take," Irwin recalls.) One of his big ideas is "ultra-real time": He believes the wireless phone will allow us to experience world events simultaneously, as we did back in the days of three broadcast networks. With Internet- and TV-connected cellphones, he says, people will be able to film, transmit, and watch news, entertainment, or personal events live. "I think there will be a generation of kids that will grow up feeling like they should know about things as they happen," he says. "It'll be a world truly experienced in real time."

Jacobs says ideas come to him in the middle of the night or in the shower or, more often than not, through interactions with other Qualcomm executives. He says he was in his office one day a few years back, talking with Jha, head of the company's new-ventures division at the time, and was riffing on music and radio stations, thinking aloud about how great it would be to broadcast music to a phone. Jha responded by having some engineers tinker with broadcasting and reported back that his brainiacs had come up with a way to deliver high-quality television to a cellphone. Jacobs was skeptical: "I started out thinking video on the phone isn't going to work," he recalls. "But when you see it, you just know, this is great. It is very distracting in meetings."

The TV business will either be a great triumph or Jacobs's folly. Rather than wait for carriers to adopt the technology, Jacobs decided Qualcomm should build out the entire system itself: It acquired spectrum nationwide and installed huge transmitters and other network gear. It built that cool network operations center, which takes in video feeds, preps them for cellphones, and monitors the system. The facility, housed in a nondescript office park that was once home to Qualcomm's chip business, even boasts editing bays that can be used to stitch together programming blocks or original shows for the very small screen. Qualcomm is in talks with major networks to get content. Some of the channels Qualcomm may offer will have the same programming that's on cable and broadcast while others will package clips and shows especially for MediaFLO.

The service, which Verizon plans to start reselling to customers next year, promises to be different from other video-on-cellphone offerings currently available: To conserve space on the carriers' broadband networks, current streaming video offerings



Chip boss Sanjay Jha with a Qualcomm-equipped phone aimed at lower-income markets

are either extremely short and low quality or are longer clips that must be downloaded for later viewing. Qualcomm will operate a completely separate wireless network exclusively for TV channels, enabling it to deliver content without putting a strain on the carriers' existing 3G networks. Jacobs thinks consumers will go for live TV on their cellphones and not just because it's a big phenomenon in South Korea. (Videogame players are sex symbols there too, so go figure.) He's bullish on the quality of the service, which delivers up to 30 frames per second, compared with about 15 frames per second with the best wireless streaming experiences. The Nokia-backed DVB-H standard has already been adopted by some European carriers, but Qualcomm isn't being shut out of that market altogether: News Corp.'s BSKyB is testing the technology in Britain. Jacobs is mainly enthusiastic about cellphone TV because it is a service everyone understands. Ringtone downloads baffle consumers over the age of 25, but anyone could figure out how to change channels on a cellphone.

MediaFLO represents a big change for Qualcomm, and not just because Jacobs is now calling his counterparts at TV and movie companies. (Former Paramount Pictures head Sherry Lansing just joined the Qualcomm board.) Investors are wondering what this new business will mean for Qualcomm, at least in the short term—Jacobs has said he plans to eventually spin off the media business. "The Street doesn't give us much value for something like BREW or MediaFLO, but they will when they start seeing the earnings from it and the earnings growth," Jacobs says. "I do believe over the last year we've gotten people to understand we are a wireless-technology company and not just a CDMA company." In other words, it isn't his father's Qualcomm.

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LIVE TV ON YOUR PHONE

Qualcomm is betting that TV is the next big thing in wireless. Here's what the four biggest U.S. carriers are doing in television.

- VERIZON WIRELESS** will resell Qualcomm's MediaFLO starting next year.
- CINGULAR** has been offering MobiTV's service since last year.
- SPRINT** uses MobiTV and is conducting limited trials of MediaFLO.
- T-MOBILE** doesn't have TV service yet but has said it probably won't use MediaFLO.