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October 7, 2011

Analyst Insights

Faultline: AirTies tempted away to Quantenna chips for home video distribution

Aug 18, 2011 – Rethink Research



Turkish WiFi video specialist AirTies Wireless Network hasn't exactly dumped Broadcom as its main WiFi chip supplier, but it has taken on arch-rival Quantenna. It has re-engineered many of its home router devices in time to show at IBC and will begin shipping Quantenna based devices, mostly in Europe, in the fourth quarter.

One of AirTies prospect, looking at both solutions said, "I want that software on that chip," and introduced the two companies, and they have gone from there.

AirTies CEO Bulent Celebi was careful to emphasize that his company's relationship with Broadcom remained strong, and not only does AirTies ship existing Broadcom 2 x 2 WiFi receivers and other Broadcom chips, but he says they will continue to evaluate new Broadcom devices as they come out. "If Broadcom comes out with a 4 X 4 MIMO chip a year from now we'll take a look at it," he said. Broadcom has some launches at IBC next month, but one of them is thought to be a 3 x 3 MIMO WiFi chip, which AirTies has already examined.

But for now it is the raw performance of the multi-path performance of Quantenna chips which is impressive. "We have a demo room on the ground floor and my office two floors up," said Celebi, "and we achieved 95 Mbps using the Quantenna chips, when 2 x 2 chips couldn't even make a connection."

This move and other desertions from Broadcom and Atheros suggests that neither have an imminent response to the invasion of their core turf by Quantenna, something that makes executives at both Broadcom and Atheros Qualcomm vice when you bring it up. Quantenna has had major wins at Motorola and NetGear in the US, and now AirTies has fallen, one of the most technologically sophisticated customers in Europe. All of these customers are close enough to their respective suppliers to be aware of future roadmaps, but both Atheros and Broadcom have been stuck in the 2 X 2 MIMO space, and have a roadmap to 3 x 3 only.

"We have looked at the 3 x 3 chips," admits Celebi, "and none of them currently are as good as the Quantenna chips. They are all working on it and getting better, but then again Quantenna is not standing still either."

Israeli specialist Celeno, with video chip wins at China Telecom, Liberty Global, Taiwanese home gateway maker Zyxel, and Deutsche Telekom, to name a few, has its own MIMO system which can accommodate up to 6 antenna, which it says will talk to existing single antenna WiFi receivers, and doesn't need a pair. Quantenna chips use 4 X 4 MIMO with 802.11n and says that it is the most complete N class WiFi chip out there.

Neither Atheros or Broadcom have yet shown any weakness in their Wireless revenues, but they will not want to miss out on an explosion in sophisticated video carriage around the home.

AirTies will use its video aware firmware which sits just above the MAC of the chip, to make the Quantenna chip become hyper aware of video. This means pulling tricks like pre-testing the signal quality of a variety of channels before choosing the one that will send a full I-Frame without any interference or data loss.

It does this using firmware which allows the chip to dynamically sniff each of the radio channels in 5GHz and decide which of the 22 available will best allow the next set of packets due to be sent to reach their destination unhampered by interference. It can also carry out predictive calculations to check that the channel is clear enough to ensure the send, and identify video packets and put them in a Quality of Service stream.

The router starts by using the clearest available channel when it first comes up. From that point on, all other channels are periodically sampled for quality. The information gathered on the other channels helps decide which channel to switch to when the channel currently being used can no longer support real-time video transmission. AirTies also has its own mesh design which helps it route traffic around concrete walls rather than trying to go through them, but once again, using this with Broadcom chips still failed to compare well with Quantenna.

"We will use this chip where the customer is happy to pay the higher price for this type of performance, but that still means we will use an awful lot of Broadcom chips," confirmed Celebi.

AirTies CTO Metin Taskin told us on a previous occasion, "Two antenna give you plenty of capability to send internet or IPTV delivered video around a home without any packet losses," but has now changed his tune slightly. Now he reckons that it is the concrete walls of some European buildings which need more pathways to bounce signals around them rather than try to go through them. And this is better using Quantenna chips which result in "performance levels that outstrip anything available in today's market in terms of quality, range and reliability." Which Metin will remember is more or less what Faultline suggested when we last met.

The first fruits of the partnership between AirTies and Quantenna are new versions of AirTies' wireless video access point launched as the Air 4610/1 and Air 4640/1 and these will be on display at IBC next month.

Quantenna said, "AirTies has built a strong reputation for optimizing 802.11n technology using dual-mode concurrent architectures and other proprietary enhancements, and we are very

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excited about how well the AirTies platform performs using our 4x4 MIMO chipsets with advanced beamforming and channel-optimization capabilities."

Quantenna's silicon claims a performance of 600 Mbps of bandwidth throughout a home and even has a big improvement, just as Celeno claims, when connecting to non-4x4 MIMO clients such as iPads or 2x2 and 3x3 MIMO clients which are often found in laptop computers.

It's all about the number of potential paths that are available in the two WiFi spectrum channels in 2.4 GHz and 5 GHz. Also there are more potential paths to try out if both ends have 4 x 4, but plenty if one end has 4 antenna and the other has 1 or 2 antennas.

Another AirTies selling point has been the ease of which end users can tune devices with a single touch on each device, at installation, something it has patented and calls Airtouch technology; on the fact that it does its own software upgrades and bug fixes instead of relying on the chip vendor and can download these remotely, and offers many devices in Europe through retail as well as through operators. It also offers its own Help desk to operators to back end their technical efforts.

Work is also underway to incorporate the Quantenna chipset into the next generation of AirTies video gateway products

AirTies was formed in February 2004 by a management and technical team from the Silicon Valley, USA, with the strategic intent to become the leader in EMEA markets and it has already amassed an installed base of 6 million devices.

The company has said that this year it will get 50% of its revenue from IPTV set tops, rather than the 20% it got last year, and has a 60% plus market share of operator WiFi in its home country and has begun attacking the UK markets with retail products aimed at connecting YouView set tops to smart TVs using WiFi, something omitted from most early specs.

"We will get much of our revenue from operators this year, rather than retail," confirmed Celebi, "and our pipeline is considerably stronger now, and especially in countries where they use a lot of concrete in buildings." He also confirmed that revenues were 100% up in the first half and that the company employs some 250 people now. AirTies has just taken another order from Turk Telecom for 33,000 more devices for its IPTV service.

AirTies also has plans to add software which turn power line and WiFi into a single network, which can send some packets over one, and other packets from the same source over another route, creating a single heterogeneous network, which is a step beyond the IEEE P1905.1

standard. Essentially this is firmware which intelligently aggregates bandwidth across both like a mesh network.

We had assumed that this would be a full Broadcom solution relying on Broadcom's Gige acquisition for the power line element, but that must now be in question..

Atheros has already gone some way down the same route, but is still is at an early stage in developing its own mesh technology, and so far has only demonstrated traffic making a few isolated hops between Wi-Fi and power line as far as we can see.

Courtesy [Rethink Research](#).

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