The rave is back – at least on record. But what strange records: the buzz and howl of archaic synthesizers, played with a teeth-on-edge timbre last heard in London's acid house clubs of the early '90s, today come from hip-hop – especially the Southern variant called "crunk," which is essentially the invention of the Atlanta producer Lil' Jon.

Synthesizers – electronic instruments that manipulate electrical signals to create sounds ranging from the simulacral to the brazenly artificial – often anchor dance music forms like house and techno, but they have never been the centerpiece of hip-hop. Although Afrika Baambaataa's "Planet Rock" famously sampled the German group Kraftwerk's proto-techno keyboards, and Los Angeles "G-funk" soared on Dr. Dre's squealing tremolo lines, hip-hop's cornerstone is the sampler, a device capable of reproducing any sound, whether recorded or played live. Early hip-hop tracks accompanied rappers with drum machines, but those fell out of favor as the break beat – a sampled drum fill generally lifted from vintage funk, soul, and even rock records – became hip-hop's gold standard.

Lil' Jon, whose productions have underpinned some of the year's biggest hits – Lil' Jon and the East Side Boyz' "Get Low," Ciara's "Goodies," and most notably Usher's ubiquitous "Yeah" – has reintroduced the synthesizer to rap music. Lil' Jon's signature may be the group chants of songs like "Who U Wit?" – shout-along choruses that recall the macho bonding rituals of East Coast hardcore punk – but it's the synthesizers that make his hits so infectious. The vocal refrain to "Yeah" is heady, but the real hook is a minor-key riff that cuts through the air like a bomb-shelter siren. The staccato figure is a dead ringer for the "stab," a classic techno ornament immortalized in the detuned wobble piercing Joey Beltram's rave-era tune "Mentasm."

What's most intriguing about Lil' Jon's icy pokes and glissandos is the raw, unprocessed quality of his sounds, which often hover just out of tune of each other, creating a delicious friction. While the programmer-musicians of electronic dance music and most current hip-hop alike spend hours tweaking their patches to mask their sources, Lil' Jon's tones sound like they come straight out of the box. Anyone might come up with the same unvarnished
kazoo sounds within five minutes of sitting down at a keyboard store's display model, but the roughness only adds to the devil-may-care quality of crunk, in which spontaneity is expressed not in tricky wordplay but in the brute force of barking in unison.

Lil' Jon's productions lean heavily on Miami bass, a regional strain of rap music that overlaps with techno in its preference for sharp, spiky rhythms programmed on primitive drum machines and bass synthesizers. Like Chicago's acid house music, which was born with the Roland TB-303, a single instrument was responsible for the development of the Miami bass sound, the Roland TR-808. (In England, a pioneering rave group paid homage to the instrument by naming itself 808 State.) The 808, with its crisp handclaps and dull, trunk-thumping bass drums, is at the core of Lil' Jon's tight, mechanized funk, in which hi-hat rolls uncoil like springs.

While hip-hop culture has often positioned itself at odds with electronic dance music – in "Without Me," Eminem dissed Moby with the line, "Nobody listens to techno" – Lil' Jon makes no secret of his debt to rave culture. In an interview with the hip-hop production magazine *Scratch*, he rhapsodized about the Novation Bass Station, a staple of dance-music production, claiming that he was inspired by the synthesizer sounds of "rave/dance music" he heard playing in Atlanta strip clubs.

Lil' Jon's new album, *Crunk Juice*, deviates somewhat from his work so far, sampling the heavy metal band Slayer and the punk group Bad Brains – and employing, on one track, the jerky, futuristic rhythms of the Neptunes, a group whose hyperkinetic, cut-and-paste productions blur the lines between the synthesizer/sampler dichotomy – but on tracks like "What U Gon' Do," unapologetically canned strings and otherworldly bass frequencies reassert the primacy of vintage gear. While Lil' Jon and his collaborating vocalists are shouting out an unholy racket, he lets the machines do the talking.